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ABSTRACT

This document represents the second hearing before the Subcommittee on Early Childhood, Youth and Families, held in Washington, DC on May 11, 1999 on the education technology programs authorized under the Elementary and Secondary Education Act (ESEA). Michael Castle, Chairman of the Subcommittee on Early Childhood, Youth and Families, Committee on Education and the Workforce, U.S. House of Representatives, presided. Contents include the opening statements of Chairman Michael Castle and of ranking member Dale Kildee and statements of: the Honorable Eugene Hickok, Secretary, Pennsylvania Department of Education, Harrisburg; Dr. Henry Marockie, State Superintendent of Schools, West Virginia Department of Education, Charleston; Professor Dale Mann, Program in Educational Administration, Department of Organization and Leadership, Teachers College, Columbia University, New York, New York; Dr. Robert McNergney, Professor of Educational Leadership Foundations and Policy, Curry School of Education, University of Virginia, Charlottesville; Ms. Terri Austin, Executive Director, Organizational Department, Anderson Community School Corporation, Anderson, Indiana; and Mr. Bruce Droste, Director, the Virtual High School, the Concord Consortium, Concord, Massachusetts. Appendixes include the written opening statement of Chairman Michael Castle and the written testimonies of: the Honorable Eugene Hickok, Dr. Henry Marockie, Professor Dale Mann, Dr. Robert McNergney; Ms. Terri Austin; and Mr. Bruce Droste. (Includes a table of indexes.) (AEF)

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EDUCATION TECHNOLOGY PROGRAMS AUTHORIZED UNDER THE ELEMENTARY AND SECONDARY EDUCATION ACT (ESEA)

ED 465 372

HEARING

BEFORE THE

SUBCOMMITTEE ON EARLY CHILDHOOD,
YOUTH AND FAMILIES

OF THE

COMMITTEE ON EDUCATION AND
THE WORKFORCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

HEARING HELD IN WASHINGTON, DC, MAY 11, 1999

Serial No. 106–34

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HEARING ON EDUCATION TECHNOLOGY PROGRAMS AUTHORIZED UNDER THE ELEMENTARY AND SECONDARY EDUCATION ACT (ESEA)

TUESDAY, MAY 11, 1999
HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES,
COMMITTEE ON EDUCATION AND THE WORKFORCE,
WASHINGTON, D.C.

The Subcommittee met, pursuant to notice, at 1:38 p.m., in Room 2175, Rayburn House Office Building, Hon. Michael Castle [Chairman of the Subcommittee] presiding.

Present: Representatives Castle, Goodling, Petri, McIntosh, Tancredo, Kildee, Owens, Payne, Scott, McCarthy, Sanchez, and Wu.

Staff Present: Robert Borden, Professional Staff Member; Mary Clagett, Professional Staff Member; Cindy Herrle, Professional Staff Member; Michael Reynard, Media Assistant; Kevin Talley, Staff Director; Shane Wright, Legislative Assistant; Dan Lara, Press Secretary; Alex Nock, Legislative Association, Education; June Harris, Education Coordinator; Roxana Folescu, Staff Assistant, Education, and Marshall Grigsby, Legislative Associate, Education.

OPENING STATEMEN OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC

Chairman Castle. [presiding] Good afternoon. I apologize for starting a little bit late, but as Mr. Kildee has said, by government standards, we're starting pretty much on time. Some of you are familiar with that out there.

I am Mike Castle, and I am the cchairman of the Subcommittee on Early Childhood, Youth, and Families. That is the Subcommittee that is meeting now. This is a hearing on education technology programs.

I would like to take this opportunity to welcome all of you to our second hearing on this issue that is important to all of us, which, of course, is the education of our children, and how technology can be used to expand educational opportunities and improve student achievement for all students.

The first hearing that we held on this issue was conducted in my home State of Delaware. Mr. Kildee was kind enough to be there. At that hearing, we received testimony from Governor Tom Carper, Delaware Secretary of Education, Iris Metts, and nine other State and local leaders in our State's efforts to integrate technology into the classroom. The witnesses in Delaware told us of innovative programs and strategies that will lead Delaware schools into the next millennium. We learned a great deal from that hearing, and I look forward to learning a great deal from today's panel of witnesses.

We hope to come away from this morning's hearing with, not only an understanding of how different States and school systems are using technology to improve education, but also with recommendations of how we, at the national level, can better assist States and local communities to use technology to improve public schools.

Let me reiterate that for a moment, if I can. As you know, we are going to be reauthorizing the Elementary and Secondary Education Act, and the sections that primarily pertain to technology, but encompass almost all of the world of technology in schools. So, whatever recommendations you have, at any point, if you're reading your testimony and you're talking about your own program, and you have a brilliant idea about what we can do better here, please stop and give us that idea, because we're interested in whatever we can do to help deliver the services better, which is what you are doing at the State and local level.

In recent years, funding for education technology programs has dramatically increased at the national level. In fact, Federal funding for education technology programs authorized under title III of ESEA alone has increased, listen to this, from $52.6 million in Fiscal Year 1995 to $698 million in Fiscal Year 1999.

However, as part of that growing support, so many programs have sprung up that we are faced with a situation where there is inadequate coordination among the programs at the Federal level. Again, we're interested in comments on that.

This forces school administrators to waste hours of time and money, and in some cases, to hire consultants to fill out applications for federal education technology dollars. The United States General Accounting Office, which we often know as GAO, has reported that there are over 27 Federal programs administered by 5 different Federal agencies, which provide funding for education technology for K through 12 schools, and to libraries.

Federal assistance ranges from grants to States and local school districts for education technology authorized under ESEA, to tax incentives for corporate donations of computer technology for elementary and secondary education, to establishment of the E-rate.

The primary education technology programs that are under the jurisdiction of our Committee, however, are those authorized in title III of ESEA, including the National Challenge Grants for Technology in Education, and the Technology Literacy Challenge Fund. However, if we are to be successful in providing the kind of assistance to States and local school districts that will be necessary for the continued successful integration of technology into the classroom, we must look beyond just the programs authorized under the technology title of ESEA.

We must find a way to consolidate, or at the very least, allow States and local school districts to integrate the different funding streams that are available for technology in ways that allow for a truly coordinated and cohesive education technology effort.

Support for education technology must lead to increased academic performance, not just the presence of new computers in the classroom, or access to the internet. Recent studies have found that education technology can have a positive impact on student achievement, but only when used by well-trained teachers. In fact, studies on the use of technology in the classroom stress the need for improved teacher training, the integration of technology into the education process, including curriculum development that effectively integrates technology, adequate access to technology, and careful planning.

While we are still in the process of determining what exactly we will do with regard to education technology as part of our consideration of ESEA this year, you can expect that technology will be a major focus of any reform. It is essential that any reforms in Federal education legislation get funding into the hands of local educators in the most efficient manner, so that they can determine the priorities and needs of their students.

The question is, what is the best way to support successful technology efforts at the State and local level? I invite you to work with us in development of the legislation to reauthorize ESEA, and particularly, on that portion of the legislation dealing with education technology. I look forward to your testimony. I know that it will be most helpful to us in our effort.

I will now turn to Mr. Kildee for his opening statement.

WRITTEN OPENING STATEMEN OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC – SEE APPENDIX A

OPENING STATEMENT OF RANKING MEMBER DALE KILDEE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC

Mr. Kildee. Good afternoon. I am pleased to join Chairman Castle in welcoming our witnesses to the second of our Subcommittee hearings on education technology and our efforts to reauthorize title III educational technology programs.

I've been involved in these programs for 23 years, and you can imagine that things were quite different back then. Technology as we know it was really in its infancy back then. Technology in our classrooms, and our attempts to increase its access to disadvantaged children, is an essential component in raising the educational achievement of our nation's students. I taught for 10 years in an inner-city school where the technology improvements there really do make a difference.

No better example of technology's impact on student achievement is evidenced by the recently issued long-term study of the West Virginia Basic Skills/Computer Education Program, which we will hear about today. This study showed that technology was an important factor in helping students make significant gains in basic educational skills, and achieve to high standards. More importantly, the study found that West Virginia's technology program made its biggest impact on the neediest children, and rural children, and those children without computers at home.

These disadvantaged children showed the largest gains in student achievement, and this study found that the educational technology resources provided in schools was a major factor in accomplishing this feat. In our efforts to evaluate current Federal technology initiatives, we should not lose sight of the fact that simply placing technology in our classrooms is not enough. Teachers must have the knowledge and skills to integrate technology into everyday instruction and teaching.

I can go back to a really good example of why placing technology in the classroom with no support or training is a problem. I was teaching when Sputnik went up and that resulted in us getting a lot of equipment. Unfortunately the teachers were not prepared to use the equipment. That's one thing that we have to constantly examine.

Professional development in this area is critical to technology having a positive impact on student achievement, as is evidenced by the West Virginia study. As Governor Castle and I look at reauthorization of the Elementary and Secondary Education Act, including title III programs, and others that have a technology focus, I am interested in finding ways to better target technology to disadvantaged children, and coordinate existing ESEA programs to make them even more effective. In addition, on the top of our list should be strengthening of the professional development focus of these programs.

I thank you, Mr. Chairman, for holding this hearing, and look forward to the testimony of the witnesses.

Chairman Castle. Thank you very much, Mr, Kildee. We appreciate your statement and look forward to hearing your questioning of the witnesses, as well.

Chairman Castle. Let me thank the other members of the Subcommittee for being here. You should know that we don't vote until 6:00, and we didn't start until today, so when you have any members of any Subcommittee here, it is always a bonus as far as I'm concerned. So, we appreciate their efforts to be here on time for this.

Let me just basically explain to youthe ground rules. There is a green, a yellow, and a red light. The green is on for four minutes, the yellow for one, and the red for five minutes. Now, at five minutes, I'm not going to hit the gavel particularly hard, but if you can start thinking about winding down at that point, it would be helpful.

Somebody here has a tape, is that right? Mr. Droste has a tape that is about eight minutes long, and what we've decided to do is to play the tape probably after we go through the opening statements and some of the questions. That is for two reasons. One is because of time. I think it is about eight minutes long.

Secondly, we're having a hearing on technology, and we're not sure we have the technology to play that tape quite yet. We're trying to work it out right now. I may not be the right person to hold this hearing. My wife went away and I decided to watch Godfather II, which she had never wanted to see, which I had a tape of, and we had a new VCR, and I got it all set up on a Friday night, and I hit the button, and I never could turn it on. I still have yet to watch that movie. So, maybe I'm not quite the right person, but hopefully we can straighten out policy even if we can't run machinery around here.

Mr. Kildee. When will we have our first long distance testimony in Washington, DC?

[Laughter.]

Chairman Castle. That's right. We'll try to do a little better when we do the distance testimony. I have to testify that way in Delaware next week.

We're pleased you're all here, let me just say that in general. You are, indeed, experts. You can help us a great deal in what we're doing. We're going to have questions for you. Each member is entitled to ask questions for five minutes, and if they want more, we'll try to give them a little more. The questions may be different than the things that you're going to talk about. As I said, we're very interested, always, in what is the Federal role in all of this, and what we should be doing.

This is a distinguished group, and the first person who will speak -- I'll go through all of the introductions first, and then I'll turn to you for your five minutes -- will be Secretary Eugene Hickok, who is sitting to my left. He is the Secretary of Education for the Commonwealth of Pennsylvania; he will testify about the use of technology in Pennsylvania's public school system. In particular, the Secretary will explain how Pennsylvania's Link-to-Learn program has become a central part of the Commonwealth's school reform efforts. Secretary Hickok and Governor Tom Ridge have lead ambitious education reform efforts in Pennsylvania that tie the integration of technology into the classroom with high academic standards for all students.

Next will be Dr. Henry Marockie, Superintendent of Schools for the State of West Virginia, who will describe how West Virginia has encouraged the effective use of technology in its schools. In particular, he will describe how the use of technology in West Virginia's Basic Skills/Computer Education program has led to significant student achievement gains in math, reading, and language arts. Through Dr. Marockie's leadership, West Virginia has become a leader among States in improving its schools and making significant gains in student achievement.

Professor Dale Mann, from the Teachers College at Columbia University, will testify about the results of studies that he has conducted in West Virginia, Colorado, and New York, on how the use of education technology has positively impacted student achievement.

Professor Robert F. McNergney, from the Curry School of Education at the University of Virginia, will testify about the importance of preparing teachers in the area of education technology in both pre-service and in-service teacher education programs. Dr. McNergney will also describe what Virginia is doing to prepare its teachers in the area of education technology.

I'm going to turn to Congressman McIntosh for the next introduction.

Mr. McIntosh. Thank you, Mr. Chairman. Thank you for holding this hearing on the critical issue of technology use in the school room. It gives me great pleasure today to introduce to the Committee Terri Austin, who is the Executive Director for Organizational Development and Quality Improvement, for the Anderson Community School Corporation, which is in my district in Anderson, Indiana.

In this capacity, Terri serves as the project director for Anderson Community Technology Now, or ACT Now Project, which is an exciting, bold, and innovative program chartering a successful course for children in Indiana into the 21st century.

Frankly, I have to tell you that when I first got to know about the ACT Now project, I realized this is exactly what the future of our education system should be. It is a productive partnership between local and State education leaders, our higher education institutions, and the business community, with the goal of raising the academic achievement of over 3,000 under-challenged and at-risk students in Anderson.

I first heard about it when the chamber came, very excited, to me, and said, "We are in the process of raising $2.5 million for a challenge grant to get computers to our middle school students in Anderson in the most underprivileged neighborhoods."

The program has been a success in that it provides improved teaching practices, increases the community and parental involvement, and the focus on technology, specifically computers, is developed. This is a very precious resource for the school system. Everyone has been a winner in the program. The school's can give a better education; the student's get a better education; our community and State gain from better trained workers in the future; and I'm looking forward to hearing what Terri has to say.

I also want to mention that her superintendent, Ms. Jane Kendrick, of the Anderson Community Schools, was very much responsible for this. Her vision, and seeing how this matching grant program could work for Anderson, was one that I welcomed greatly when talking to her about it. So, I look forward to hearing her testimony, and, once again, I would urge the Committee Members to pay attention very closely today to what we can do on technology.

I'm pleased that the Chairman, in his remarks, indicated this would be a very important part of our reauthorization of the Elementary and Secondary Education Act, next year. Thank you, Mr. Chairman.

Chairman Castle. Thank you, Congressman McIntosh. We appreciate that kind introduction.

Our final witness will be Mr. Bruce Droste, who is the Director of the Virtual High School, headquartered in Concord, Massachusetts. He will describe the Virtual High School project, and how the Concord consortium has utilized funding under title III of ESEA to carry out this program. We welcome all of you here today, and now we'll turn to Secretary Hickok.

STATEMENT OF THE HONORABLE EUGENE HICKOK, SECRETARY, PENNSYLVANIA DEPARTMENT OF EDUCATION, HARRISBURG, PA

Secretary Hickok. Thank you very much, Mr. Chairman. Thank you for the opportunity to be with you today to discuss the exciting and innovative things that are happening in Pennsylvania and all across this country with regard to educational technology.

We in Pennsylvania feel that technology is a major tool that is changing how we deliver education for all of our citizens. Governor Ridge has made technology a very high priority for Pennsylvania. The budget that he signed just last week continues a historic commitment to education technology by earmarking an additional $34 million in a budget on top of a three-year initiative of over $132 million called Link-to-Learn, a technology program that, quite literally, has brought technology into all of our classrooms, all of our libraries, all of our community centers, and connecting all of those to the rest of the world.

We argue, pretty consistently, that technology is a tool, and the goal for educational technology, is, quite simply, to improve academic performance. That has always been our goal in Link-to-Learn; that has always been our goal under educational technology. And, we now know, and I'm sure others on this panel will agree, that technology can, indeed, if smartly used, improve academic achievement.

I point to just one school district in Pennsylvania, Penn-Delco, just outside of Philadelphia. At one point in time, they had a persistent problem with fourth grade math students who were not performing at acceptable levels, and they had tried every strategy, every teaching technique, every curriculum device they could find. Nothing seemed to be working. So, they decided to look at technology. Established a clear goal. Developed technology plans designed to empower their teachers and offer customized learning for each individual fourth grader through technology. Using State and Federal title III funding, they purchased computers, installed a network to connect them to the internet, acquired an integrated learning system aligned with both State and national academic standards, trained their teachers, and the results were nothing short of stunning.

Students spending about 15 minutes per day using the technology demonstrated remarkable improvements. Teachers found that they were able to deliver more customized instruction for each individual student, and at a time when we're talking about class size as a major issue, this is something to think about, how technology can help customize learning even in a large classroom.

Teachers were excited. Students were excited. Parents were excited. The most telling thing is the phenomenal rise in student standardized test scores, more than 30 percent in one year. Teachers in this district are now able to spend time doing what they do best, teaching, ameliorating the need for lower class sizes.

Now, as has already been said by members of the committee, we would agree that the single most important factor in effective use of technology is teacher preparation and professional development. We know that teachers are eager to use these new tools, but we also know they need professional development help on how to use them. Professional development is a very important part of what Pennsylvania does. Every one of our grants requires a professional development component.

On our website, which gets approximately one million hits a month, we have over 3,000 pages of lesson plans, guides, tutorials, case studies. We're working with Indiana University of Pennsylvania on a professional development plan with technology and preparation for in-service for vocational-technical instructors.

We believe that it is critical that professional development be a major component in everything we do in educational technology. We also think, as we look at what we did with The Technology Literacy Challenge Fund, that you develop ways to make sure that, as you said, Mr. Chairman, you coordinate our efforts. It is one thing to develop funding and deliver material at the school district. But, it needs to be systemic, state-wide, coordinated, so that there is a way to make sure that at the end of the day, you, indeed, have a system that is emerging, and not just pockets of success.

We have a plan in Pennsylvania. Schools first must identify an education goal, and then outline a plan to use technology to meet that goal. Again, the point here is education, not just technology. We don't want to have a wish list. We want to have complete successes.

Second, schools are required to share the technology with the community and use it after school and during the summer months, leveraging the investments in schools with community investments and community assets.

Finally, all schools must provide professional development to train teachers in how to effectively integrate technology into the classroom.

In many ways, we look at all of what we do, including title III, as technology venture capital funds. Ways to take public funds and attract community support and private support so that you institutionalize at the community level a sense of the importance of technology in education, as it benefits the community, as well as the schools.

To do that, we want to make sure that schools have flexibility. One of the great assets about public education in this country is that every community has its own unique characteristics. One of the things that we want to do with technology is make sure that it reflects the concerns of the individual communities, while we also are consistent in the ways those communities connect across the Commonwealth.

A great example of that was a vocational-technical school in Pennsylvania, Sun VoTech. Governor Ridge was recently just given a computer in his office that was constructed completely by students at the vocational-technical school, and, indeed, they're doing that as a small, but growing, enterprise, not just in their region, but across the State. It is a tremendous investment in both education, workforce development, and economic development within the State.

As a result, 1,000 students have been trained and will build 3,000 computers at a cost of roughly $600 per computer; a 44 percent savings. That is leveraging an investment. You're getting a computer, but you're also getting talented, trained individuals, and those individuals then go immediately into high paying jobs in the private sector.

We've also harnessed the flexibility of title III to develop a new program called Digital Grassroots. Looking at what some other States and other nations are doing, we provide mini-grants for students to design and develop websites featuring unique aspects of their community. There again, this has a multi-tiered effect. It gets the students engaged in learning how to do technology, skills that will be used far into the next century. It also provides workforce development skills for them. It also is a way for students to connect with the world in which they live. It takes them beyond the classroom, while they don't even have to leave the classroom.

So, I think that illustrates the kind of dynamic potential we have here. Technology has been our primary tool to perform an aggressive agenda on academic standards, on professional development, on teacher preparation, on alternative certification. Virtually everything we do. I shouldn't stop without commenting on the fact that it is becoming a more vital part of how higher education connects to basic and secondary education. Trying to create that seamless web from K through graduate school as we emerge with a new approach to education in the 21st century.

I would encourage, as you consider the reauthorization of the Elementary and Secondary Education Act, that you adopt the principle of empowering the States. Our children are best served if you enable the States, working with parents, and teachers, and school boards, and concerned citizens, at the grassroots level, to direct Federal resources where they are needed most. We agree that one size fits all is an inadequate approach to all of education, and we would encourage, as you go down this road, to consider ways to free up the energy at the local level with the kind of outstanding support that you've given to educational technology. Thank you.

[The statement of Secretary Hickok follows:]

WRITTEN TESTIMONY OF THE HONORABLE EUGENE HICKOK, SECRETARY, PENNSYLVANIA DEPARTMENT OF EDUCATION, HARRISBURG, PA – SEE APPENDIX B

Chairman Castle. Thank you, Secretary Hickok. The technology gods are not smiling on us today.

[Laughter.]

We're having trouble getting any kind of a green light on this. My handy little Timex still works. I'll time the five minutes, and then we'll give you a little rap signal or something like that. We'll just skip that machine, I think. After all, it involves three whole lights; it is a little complex for us here in Congress. Dr. Marockie, we look forward to your testimony, sir.

STATEMENT OF DR. HENRY MAROCKIE, STATE SUPERINTENDENT OF SCHOOLS, WEST VIRGINIA DEPARTMENT OF EDUCATION, CHARLESTON, WV

Dr. Marockie. Mr. Chairman, Members of the Committee, thank you very much for the opportunity to participate in the hearing today. Congressman Kildee, we're delighted to hear of your experiences in the classroom way back when.

Our project started in 1989, when we were advised that technology would never work in the classrooms because teachers were too fearful and would never use computers. That statement was made by a major vendor in this country in 1989. So, it tells you how far public education has come in those short years.

We've had great support from two Governors in West Virginia, Governor Caperton and now Governor Underwood, in support of the technology initiative. It started out as a program, very limited in focus, designed specifically for three areas of the instructional program; reading, language arts, and mathematics. We did not want a broad scope. We wanted it as a tool for teachers to be able to use it as a tool to teach those three things, and we were very concerned, as the Congressman pointed out, about the disadvantaged youngsters that were falling behind in everything, not just technology, because we had none.

We're very delighted to report today that that is the grouping of youngsters that was helped the most in all of this program. We are now affecting some 160,000 students in the State of West Virginia with this program, because we can delightfully say that in kindergarten through the sixth grade, every classroom in the State of West Virginia has four computers with a trained teacher using technology as a tool in order to improve the basic skills. My good colleague on my left, Dr. Mann, who has done the great study, will reiterate more of that in the meantime.

We use a turnkey approach, which meant that all of the hardware, all of the software, and all of the training, were a part of the package for the professional development of teachers before they received the box in their room. One of the things that we had learned earlier in the game was that many people receiving computers in their classroom, not only as we heard before, were untrained to use them, and we wanted to avoid that. With the turnkey solution, we were able to do that.

We've had tremendous increases in student performance in our own standardized test scores, but more importantly than that, our youngsters are competing on the national level with then NAEP exam. On a report recently given to NAGB before the NAEP scores, in three different categories of States, only two States in the country met all three achievement levels of mathematics; one was North Carolina, and we're proud to say the other was West Virginia. We attribute much of that to the improvement of the basic skills, because the youngsters at the bottom of the level were improving, and, subsequently, the rest of it is improving, the youngsters at the upper level.

The second part of the program in West Virginia is also very intriguing, and that is the partnership with IBM on an IBM reinventing grant. We've selected the best mathematics lesson plans in the State. We had a group of experts from the teaching classrooms come into us, jury the lesson plans, and find out which were the best lesson plans, utilizing the best and single teacher in West Virginia who has met the standards for the National Professional Development Board, the Standards Board. She's the lead teacher in websiting those lesson plans all across the State of West Virginia in mathematics, with tremendous response, so much so that those responses are now going to language arts, social studies, and science.

We also had a study done by the Children for Technology of New York City. Analyzing that study finding increasing student motivation, participation and achievement with the greatest impact from the traditionally poor students who have not had access to that kind of instruction.

We truly are, in West Virginia decreasing the digital divide between poor and disadvantaged children, and the affluent students who have had the access to these things in the past. Without a doubt, Federal funding for technology has enabled West Virginia to make tremendous strides in providing learning technology in classrooms all across the State.

Your Federal title III programs which support State and educational technology are well targeted to the pivotal components of education reform. Our plans for technology and professional development are integrated with State and local plans for the reform package. We have the Federal priority of technologies. All Federal programs are integrated with State programs, and we also use the initiatives of the Federal legislation, title VI for innovative strategies, the Eisenhower math and science programs, Goals 2000 money, title I monies, and especially now, the comprehensive school reform monies, which you have now allowed us to use with the respect to programs.

The Technology Literacy Challenge Fund, which has been mentioned here earlier, in our first go-around with that. Seventy-five percent of the districts in the State of West Virginia applied for the money. We now anticipate 95 percent to anticipate grant renewal. We are affecting 30,000 students in the State of West Virginia with that particular project.

More than 50 percent of the funding through the Technology Literacy grants was used for local education agencies to further implement the successful basic skills component. I think it is a great demonstration on a partnership between IBM and Jostens, the State of West Virginia, and also utilizing Federal and State funds for the benefit of that particular project. I strongly urge you to continue the technology funding under title III, part A of ESEA, and I strongly encourage you to make the States major players in the part of the distribution because of the fact that in a place like the State of West Virginia, or in any State, I'm convinced that much of the expertise and resources can be available to those places in a single position, as compared to each individual entity doing it out there on their own where they're lacking for those expertise and resources.

We've done some studies in West Virginia where we have allowed the largest system in the State to go through the bidding process for the purchase of computers. We have found that we are able to save significant amounts of monies on purchasing those equipments by using the State system.

Lastly, let me conclude by saying that, while I don't think it may be a part of this program, I happen to have the privilege of serving on the USAC Board, Schools and Libraries Division, whereby last year, in the first cycle, we've been able to distribute $1.6 billion of funding to schools and libraries across the States in this country. What's happening with those monies is that libraries are being connected to schools. It is making a major impact, and I would strongly encourage you to keep the State role effective with that in the next distribution.

I thank you for the opportunity to participate. In closing, I just want to keep the thing before you, which is to keep the State role because it has a major part to play in the distribution of the grants, and the receipt of those grants in the States. I thank you very much,

[The statement of Dr. Marockie follows:]

WRITTEN TESTIMONY OF DR. HENRY MAROCKIE, STATE SUPERINTENDENT OF SCHOOLS, WEST VIRGINIA DEPARTMENT OF EDUCATION, CHARLESTON, WV – SEE APPENDIX C

Chairman Castle. Thank you, Dr. Marockie. We appreciate your testimony. Now we'll turn to Professor Mann.

STATEMENT OF PROFESSOR DALE MANN, PROGRAM IN EDUCATIONAL ADMINISTRATION, DEPARTMENT OF ORGANIZATION AND LEADERSHIP, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, NY

Professor Mann. Thank you, Mr. Chairman. In the last three years, I've had an opportunity to conduct three studies of the effect of instructional technology on student achievement on the notorious variable of test scores. The first of the studies relates the amount of technology to the amount of gain in student test scores. The second of the studies is that one that Dr. Marockie has just referenced, the work in West Virginia, which is a look at a multi-year and comprehensive program, focused on basic skills acquisition. The third of the studies that I'd like to speak to very briefly has to do with using technology to connect schools, homes, and schools.

With respect to the first study, it is based in a part of New York State that was more impacted by the closing of military bases than any other jurisdiction in America, the area around Verona, New York. Fifty-five school districts had spent money that they were worried about having spent, and they wanted to know what difference technology investment had made. Based on an analysis of 6,000 students, teachers, and administrators, we were able to determine that as those districts spent more money on instructional technology, they also had an opportunity to get more gains in the achievement of their children.

The interesting thing to me is that the gains were the most clear where I would least have expected them, the Regents test scores. The Regent scores are those that have to do with the performance of secondary school kids. In both Regents english and in Regents math, there were gains of approximately 8 percent, not only in the number of young people taking those tests, but also in the number of young people passing those tests.

So, the first of the analysis relates the simple matter of betting on technology, and what a difference it makes for children. The second of the studies was the one that Commissioner Marockie had spoken to already, it is West Virginia, which I regard as one of the most interesting and potentially illuminating studies available among the American States.

In West Virginia, we looked at the gains of children who had had the benefit of this program over six years. It was a follow through strategy that began when they were in kindergarten, and then, essentially, saturated the children's classrooms as they moved up the grades. If you look at the fifth-grade children, 10 percent of the increases in their performance are clearly associated with instructional technology. If you look at what schools can do, as much as a third of the school available growth comes from instructional technology.

With respect to a particular interest of many Members of the Committee, the effect of instructional technology on equity issues, I am delighted to report that in West Virginia we have evidence to indicate that that program helped those children most who had no computers at home. So, the children who lacked the opportunity to work with computers in their homes were most improved by the access to computers at schools, and, in a second and related finding, which also astonishes me, children who were African-American learned the same things, at the same rates, and had the same stability as did other children. In a world in which, for 30 years, we have been expecting to find differences across the races in school achievement, I am delighted to say that it appears to be that we know how to put these things together to help all children learn.

The West Virginia example is, I believe, particularly illuminating because, not only did it help all children learn, it moved the State. West Virginia began by being 33rd of the ranked American States on school achievement, and it is currently 17th. It has out performed all other comparable States.

The third of the three studies that I want to speak to very briefly is one which uses technology to connect tools and homes. Mr. Castle, I know that in Delaware, you've had an opportunity to look at the Lightspan Partnership, which replaces the child's backpack. If your children are anything like my children, their backpack's are filled with worksheets from four years ago which have nothing to do with the homework tonight. In the instance of the Lightspan Partnership, there is a CD-ROM which is launched in the classroom, which then goes home, and it is enough fun that both the parents and the children work on the homework together.

In this instance in Adams 50, Colorado, a district which is a mixed-income district, we had three schools using this kind of technology to connect schools and homes, and three schools without it. Every school that used this technology surpassed the achievement of every other school. Fourteen points gained in math, 8 points in reading, and children in the lowest quartile, the children who historically have been hardest to reach, were benefited the most.

When I look across these studies at the kinds of generalizations that seem possible, it seems to me that there is CDS technology. That means concentrated technology, distributed technology, and sustained technology. With respect to concentration there is a critical mass at work here. If we sprinkle too few computers before too many children, it won't make a difference. West Virginia begins to show us, as does Pennsylvania, what a critical mass is like.

The second thing is distributed technology. I believe that it is particularly important to get the technology, not only before the teachers, but into the hands of the children, and into the hands of the children across the school day, which suggests to me that the most powerful places that the technology should be, are in classrooms.

The final of the three things that I think are noteworthy here is sustaining support. With the Chair's permission, I'd like to make a personal aside. Thirty-four years ago, when the Elementary and Secondary Education Act was first being considered, I was a very junior person in the then Office of Education, and had the opportunity to work on this legislation, and from the back of rooms like this. In West Virginia, the legislature there sustained its support of this over seven years, and that kind of continuity is what makes a difference.

This Committee's attention, and this Committee's willingness to add instructional technology to that which it supports, is making a real difference for the children. Thank you, sir.

[The statement of Professor Mann follows:]

WRITTEN TESTIMONY OF PROFESSOR DALE MANN, PROGRAM IN EDUCATIONAL ADMINISTRATION, DEPARTMENT OF ORGANIZATION AND LEADERSHIP, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, NY – SEE APPENDIX D

Chairman Castle. Thank you, Professor Mann, we appreciate that. Now, Dr. McNergney.

STATEMENT OF DR. ROBERT MCNERGNEY, PROFESSOR OF EDUCATIONAL LEADERSHIP FOUNDATIONS AND POLICY, CURRY

SCHOOL OF EDUCATION, UNIVERSITY OF VIRGINIA, CHARLOTTSVILLE, VA

Dr. McNergney. Thank you very much, Mr. Chairman. I just want to say that technology reminds me of baseball. I'm sure that many of you know of Casey Stengel's rich record. He managed the New York Yankees for 12 or 13 years, and he ended his career managing the Mets. I think it was about 1965. Mr. Owens probably knows that a lot of fine careers were ended with the Mets, but Stengel was a very keen observer of talent, and had a rye wit, and a reporter asked him one afternoon about a couple of 20-year old ball players that he had, and wanted to get Casey's assessment of these ball players. Stengel replied, "that fellow over there, Ed Kranepool, in 10 years that guy has a chance to be a real star. That other guy, in 10 years he's got a chance to be 30."

In a sense, what I'm going to argue is that we don't want to let today's teachers and children grow up just having a chance to get older, imagining what it is like to be proficient with technology. We've got to support them now. Time is a key variable here, and I think there are three factors that would be useful to consider; talent, opportunity, and support. I'll speak to each one of those briefly.

Talent: We know that people from all sorts of neighborhoods and communities have the talent to learn about and with technology. Literature on the use of technology is burgeoning, and there is a very, very fine review of the research literature done by Andrew Dillon and Ralph Gabbard from Indiana University. In brief, they conclude the following: that the benefits of emerging technologies are limited to the kind of learning that depends on repeated manipulation and searching of information; moreover, these benefits differ according to learner's abilities, and to their preferred learning styles.

Clearly, the research is only beginning to provide solid leads for practice. I have not read Dale Mann's results of the West Virginia study, but we're beginning to see some leads from the research, but that takes a long time. I think that we also know that technology does have positive effects on learning. We can say that with confidence. But, the other thing that I think we should be careful of is to note that technology is not a panacea.

Increasingly, however, talent is becoming the ability to integrate teaching and learning with technology, and you've mentioned that here today. The phrase, computer literacy, is being replaced or supplanted by the phrase, computer fluency. The computer science and telecommunications board makes evident this challenge, "Literacy is too modest a goal in the presence of rapid change, because it lacks the necessary staying power." I believe that is what you were talking about, Dale.

"People fluent with information technology are able to express themselves creatively, to reformulate knowledge, and to synthesize new information. Fluency with information technology entails a process of lifelong learning in which people use technology to learn professionally, as well as personally."

Number two, opportunity: There are about 1,300 colleges of education that prepare teachers, pre-service teachers. There are 200,000 pre-service teachers enter the market every year. The turnover rate of teachers in the first five years is rather phenomenal, and there are about another one million teachers out there just poised to retire. When you combine those facts with the fact that there are between 2.2 and 2.4 million teachers, depending on how you count them, out there in the workforce now as in-service teachers needing professional development, the challenge of supporting teachers to work with technology intelligently is daunting; there is no question about it.

As chairman of the AACTE, American Association of Colleges for Teacher Education Technology Committee, I've had a chance to work with and meet a lot of people around the country who are trying to help teachers do a better job, both pre-service and in-service, using technology with their students.

I can say, just as an informal observation, that there are very few programs, institutions, or people, who really have the capacity to help teachers use technology to the fullest. There are simply too many demands on their time, and there are not enough opportunities to be able to help teachers and other educators in-service learn how to use technology.

I think that the Education Department's new initiative called Preparing Tomorrow's Teachers to Use Technologies, seems like a really worthwhile move. It is a little early to say because, of course, it hasn't been funded yet, but it is an attempt to try to create consortia, to try to bring people together. This job is much too big to allow colleges or universities or school districts to go it alone, even if they had the support, they couldn't do it. We need to bring people together from across American society to bear on these problems of using technology.

Point number three, and my final point; support: Standards for technical competence, both for teachers and students, abound. We've got them in Virginia. School districts from Fairfax to Danville are really responding with great vigor, and doing so admirably to try to meet these standards. But, standards aren't going to do the trick. People need support if they're going to be successful. They need to have a chance to work with other people who have some skills and abilities, and, of course, they need access to machines, and to the internet, and to support, generally.

At the University of Virginia, our pre-service teachers use technology in every semester of their five-year teacher education program, from foundations, to methods, to fetal experiences. They've got a chance to do lots of different kinds of things, but they have a lot of support there to be able to do it. They're good people, and they work very hard, but they've got a lot of support there.

We also try to prepare in-service teachers and principals working together with us to teach online. We teach online together, and we study cases or problems of teaching and learning, much as they do in business school, or law school, or medical school. Trying to bring to bear some of the pedagogy from other professional fields to help people become successful in the use of technology.

Teachers take advantage of these opportunities because they have a chance to do that, and they have the support, and, we believe it is doing some good things, but we have a long way to go to at the University of Virginia.

When the reporter asked Casey Stengel about managing, Stengel replied, "managers are people who get paid for other home runs that other people hit." In fact, I think that good leaders today, both in government, and in education, really can support other people to be winners and to be stars with technology, but it is going to take your support, and our support, to help teachers do that. I encourage you to please provide more support for professional development for teachers so that they can have an opportunity to model for young people the way that young people should use technology in their own lives. Thank you very much,

[The statement of Dr. McNergney follows:]

WRITTEN TESTIMONY OF DR. ROBERT MCNERGNEY, PROFESSOR OF EDUCATIONAL LEADERSHIP FOUNDATIONS AND POLICY, CURRY SCHOOL OF EDUCATION, UNIVERSITY OF VIRGINIA, CHARLOTTSVILLE, VA – SEE APPENDIX E

Chairman Castle. Thank you very much, Dr. McNergney. We appreciate your testimony. Ms. Austin, we've finally worked our way down to you, or up to you is, perhaps, a better way of putting it.

STATEMENT OF MS. TERRI AUSTIN, EXECUTIVE DIRECTOR, ORGANIZATIONAL DEPARTMENT, ANDERSON COMMUNITY SCHOOL CORPORATION, ANDERSON, IN

Ms. Austin. Thank you, Chairman Castle. For the past three-and-a-half years, I've had the opportunity to serve as project director for the Anderson Community Technology Now, which was one of the original 19 Federal Technology Innovation Challenge Grants projects that were awarded when the program was first launched.

Before I begin to address how technology has been utilized to advance school reform in Anderson, and specifically, in our Challenge Grant Project, I would like to just give you a real quick glimpse of our district as a whole, because I think context is important.

Anderson is a K-12 public school system in central Indiana. We are the 12th largest urban district in the State. We have a student population of 10,693 students, and employ approximately 777 certified teaching staff members and administrators. We have 15 elementary schools, 3 middle schools, 2 high schools, a vocational-technical school, and 2 alternative school programs.

The percentage of students who are eligible for the National Free and Reduced Lunch Program range from 11 percent in some schools, to 92 percent in others. Our student mobility rates also range from 24 percent to 73 percent, and that is the moves in and out of kids in a single year.

In October, we were awarded one of the original 19 Technology Innovation and Challenge Grants from the Department of Education. Our original consortium included three state universities, four non-profit agencies or institutions, our own Indiana Department of Education, two for-profit businesses, and our local workforce development agencies.

The project combined $2.5 million in project partner funds, $1.3 million from our own school corporation, and $3.1 million that we were awarded through the Federal funds. The ACT Now Project combines some of the most innovative technology models and resources available at the local and State level into a single project, and that is coupled with the aggressive, systemic reform efforts of our own district. I think that is what is important to remember. We've been recognized at state and national levels, publication, conferences, as a demonstration of how the resources and synergy of collaboration and partnerships can be leveraged to impact an entire community.

The partnership contributions and the Federal funds have supported a comprehensive array of initiatives, and they're all designed to improve the quality of the learning experiences that we give to students. In addition to the purchase and installation of computers, the project has also included extensive professional development and technology training for teachers. I see those as two different things, sometimes. We included curriculum development; summer technology camps for students and their families; family technology training sessions that have been led by teachers, parents, and students alike; distance learning opportunities for middle school students; and implementation of the buddy system project which lends computers to students in grades four through eight who don't have a computer at home already.

We've also started a community technology center at our local public library, because we knew we needed to educate an entire community, not just the students about the powers of technology for learning.

A portion of the Federal funds that we were awarded have helped to support the activities of the Buddy System Project. Through Buddy we were able to extend the time used for learning beyond the normal six hour day, into the homes of the students and their families. We've provided, at this point, up to 800 take-home computers for students in grades 4 through 8 in 5 of our poorest elementary schools, and all 3 of our middle schools. Now there is no child in Anderson community schools who was not touched by this project, at least for 3 years during their educational career, and that gets to the consistency and longevity issue.

I think it is important to note that the 800 computers that are issued through Buddy are impacting over 3,000 kids K-12, because it is a family computer, and it is also impacting the parents and the guardians of the children themselves.

One of the things that we have found through district surveys and data that we've gathered, is that although the price of computers is more competitive than ever before, for a large segment of our population they are still out of reach. I think we need to take that into account, and I hope you will as you think about the reauthorization of ESEA, title III.

We're using Buddy to close the gap between those students and families that can afford to be a part of the information highway, and those who cannot. Security and care of the home units has not been a problem. Parents must attend mandatory training sessions to be eligible for participation in the Buddy system project, and the computers are issued on a leasing basis of $20 per semester. We found that creating some financial obligation created a stronger sense of ownership and buy-in to the project. Schools can take payments. Families can pay $5 a month, however it fits for their own family budget.

We've also, just recently for the past two summers, extended the home computers through the summer months, because that is often a down time for student learning, and families lease them through the summer for the same price as well. We know, and the families know, that if they move from the school district, or from one of the participating schools, that the computers must be returned, and that has not been a problem. They sign a liability agreement ensuring that the computers will be well cared for, and the completion of school assignments must be given first priority.

Finally, all families are also provided free internet access through our own local school corporation's dial-up server.

The evaluation data, based on reports from parents, students, and teachers, indicate that the children's engagement in learning has increased beyond the normal school day. Television watching is down. Time spent completing homework assignments and just gathering data and information for school projects is up, and the kids are working very hard, as are the parents, to increase their own technology, skills, and knowledge.

Some families have used their home technology to go back to school and advance their own educational levels. We have approximately 62 percent of our population in Anderson has a high school diploma or below. Our next evaluation focus will be on student achievement as measured through standardized tests and performance based measures. We're in the process of gathering that data. It will be in part of our performance report this year.

Our own local school corporation funds went to support the extension of our wide area network into classrooms, and the installation of five computers for student use in individual classrooms, as well. So, there is a strong connection between what goes on a school, and the purpose for the technology at home, which is a switch for us, because, primarily, we relied on a lab based approach for technology prior to the implementation of ACT Now.

The problem is, if you use labs, and sometimes you actually need both in schools, but it is like keeping the pencils down the hall, and everyone can use them for 25 minutes a week if you're lucky enough to get on the schedule. Teachers are also provided with a computer and a printer that they can choose to either keep at school or take home as a part of the project activities. We have found that that has given us a tremendous return on our staff development dollars and impact, because the teachers use the technology at home to practice what they've learned, to design better lessons for students. We've logged over 8,000 hours of professional development and technology training by the teachers and staff in this project.

The teachers have focused on using the Indiana content standards as the basis for their technology integration efforts. The classroom cluster has helped us to promote a new model of technology in schools, one that is more student focused, and more easily integrated into their daily curriculum. We've also found that, to increase family involvement in the learning process, and improve communication between teachers and principals, every student in this project has been given a email account, as well as all of our district staff. What has been very powerful is when the teachers report that they've gotten e-mails from their students. They get e-mails from family members. Family members are beginning to set up their own little networks and support groups with one another.

Another valuable partnership within this project is the local public library, and our joint development of the community technology center. CTC is located in the main branch of the Anderson public library in downtown Anderson. It was launched in April 1996, and is supported by Federal contributions, school corporation resources, and the library's own revenue. Although it started with only 10 computer stations with internet access, we quickly found, by the fall of 1996, that we had outgrown our capacity, and after school you would find students who didn't have access to technology using the computers to finish their own assignments. The library offers free technology training sessions to the public, and we've got a lot of data that shows how successful that has actually been.

Today, the community technology center offers 32 computers, 20 through Federal funds, and 12 through library revenues and other grants, along with an assortment of software and over 300 CD-ROMs for public use.

In 1998, at least 19,527 used the computers in the community technology center. We estimate that this figure may be 10 to 15 percent higher because sometimes people don't sign in. During a typical month there are between 1,600 and 2,200 users of this center. In the first year, the library offered 105 free training sessions. Last year, it doubled to 219. Other than using the technology, this has also proved beneficial to the library because they have found that their circulation rate has increased; 42 percent over 1997. Over 680,000 from the public library circulation resources were out in the public, which was at 25 percent in 1997.

I could share so many more stories from the local perspective of our project. I've received countless letters, cards, and e-mails from students, teachers, and families about this project, and the difference that it has meant to them. I've observed how teaching and learning are changing through the effective use of technology in the right project schools, and even on a personal level. I have a 12 year old and a 13 year old who are both students at Northside Middle School, which, as you know, along with the our other 2 middle schools, is in this project, and it is amazing to me to see how hard the teachers continue to work, and to see the quality of the work that teachers are designing for kids to do. We're asking kids to do challenging, engaging work, and they're coming through.

But, there are two things that I hope you will remember as you concentrate on the reauthorization. First, that our project in Anderson is really part of a larger systemic reform effort. We have been working very hard for the past six years to improve the quality of learning experiences for students, but also to improve the system as a whole.

We believe that we won't significantly raise student achievement unless we significantly improve the quality of work that teachers design for kids to do. Our work has been focused around 10 standards that we believe are necessary if the district is to have the capacity to support and sustain, over the long haul, the reform efforts of individual schools and classrooms. The 10 standards are actually depicted, and I don't know if you have this color handout in your packet or not, but they're actually based upon the work of Dr. Phil Schlechty, and you may be familiar with him and his work. In Dr. Schlechty's book, Inventing Better Schools, an Action Plan for Education Reform, our own superintendent was Dr. Schlechty's senior consultant before we hired her away,

I think that the ACT Now project came at a time when significant reform had already taken place. So, to use an Indiana analogy of the crop, the field was ready. If we had launched this project prior to systemic reform taking place, chances are, because it is so highly innovative, it may not have lasted, or made much of a difference.

Secondly, that the project uses a comprehensive approach to involve students, parents, teachers, and the community in all of its activities. Although the technology is a central and important tool to help us reach our goals, it is not the end in itself. We have demonstrated that technology can help teachers design more challenging, engaging work for kids, enable teachers and families to communicate more easily and frequently with one another, increase the time available for learning through home telecommunications, increase parent family involvement in the learning process, and increase a community's role in the reinvention of public education.

I hope that my remarks have given you some meaningful examples, and I appreciate it. I've probably taken more time than I was supposed to.

[The statement of Ms. Austin follows:]

WRITTEN TESTIMONY OF MS. TERRI AUSTIN, EXECUTIVE DIRECTOR, ORGANIZATIONAL DEPARTMENT, ANDERSON COMMUNITY SCHOOL CORPORATION, ANDERSON, IN – SEE APPENDIX F

Chairman Castle. Thank you. We appreciate it, Ms. Austin. And we'll turn to Mr. Droste.

STATEMENT OF MR. BRUCE DROSTE, DIRECTOR, THE VIRTUAL HIGH SCHOOL, THE CONCORD CONSORTIUM, CONCORD, MA

Mr. Droste. Thank you, Mr. Chairman. Well, actually I think the biggest challenge of the Challenge Grant program today is being told that I can only talk for five minutes. So, I'm delighted with this failure in technology here, because we've all been running over a little bit.

Chairman Castle. It's very interesting to see the length of time the talks go on when you don't have the light and when you do have the light.

Mr. Droste. I'd like to open with just a couple quotations. When I was asked to come here, I decided to ask the people in the Virtual High School Program speak to you, to their elected officials who they sent to Washington.

"I want everyone to know that this year has been the best professional development year for me in 27 years of teaching. I not only feel part of a new wave of education, but I feel that I have re-fallen in love with my subject, biology." That is from a teacher in Ridley High School in Folsom, Pennsylvania.

"The biggest impact on our schools is being able to offer dozens of classes to our students that wouldn't be possible otherwise. We are a small, rural school, and staff time is limited to required courses. We have little opportunity to teach elective courses in our subject areas. This gives our students the chance to take classes that might be offered in bigger schools, or even junior colleges, and higher level colleges that they wouldn't have access to due to distance, time," et cetera. That is from a teacher in Center, Colorado, in the St. Louis valley.

"Virtual High School is of special interest to us because it gives our deaf students the opportunity to participate in classes with hearing students and teachers on a fairly equal basis without the need for interpreters." That is from a deaf school here in Washington, D.C.

Simply, the Technology Innovation Challenge Grant Program in responsible for some of the most important leaps towards the effective and responsible use of technology in American education today. As a grantee, the Virtual High School is having a positive impact on thousands of high school students across America.

Like other Technology Innovation Challenge Grants, VHS is using the best of educational technologies to give students and teachers access to resources, curriculum, and training of the highest quality, and to prepare educators and learners to be skilled and competent participants in an increasingly technological world.

The Virtual High School students and teachers represent a spectrum of different ages, ethnicities, background, learning abilities, and educational experiences. Teachers who have access to the VHS professional development course find they are bringing new technology skills, new teaching strategies, and a revitalized enthusiasm back into their local classrooms.

I had actually written that before we began getting the quotations back from teachers out in the field, which came streaming in over the weekend. Essentially, the Virtual High School is a cooperative of schools across the U.S., 125 right now, that offer net courses, taught by teachers, for students in the cooperative. Each school participating offers up a teacher, my team trains the teachers, and that team is paid for by a Technology Innovation Grant. In exchange for having that teacher teach a course to all of the students out there in the participating schools, that school can enroll 20 students in the courses being offered by those schools out there. So, for a little school like Center, Colorado, or Forks, Washington, they can add 100 to 110 courses to their catalog that weren't there one year ago.

Quality is maintained by requiring each virtual teacher to successfully complete a graduate level, rigorous, professional development course on the design and development of network-based courses. These courses are delivered over the web. We have never met these teachers, we've never talked to these teachers, and they've never met or talked to their students. Yet, in feedback that we get from teachers and students, the students say they know their virtual teachers better than any teacher in their building, and the teachers say they know their students better than any students they have ever taught. There is an intimacy in this distance that we never had imagined.

With over 100 courses in the catalog, it is difficult to grasp the range of the offering, so I'll just give you a sample of four, very quickly. There is Advanced Placement Statistics. We had students in schools across the country take that course, and when they went to take their tests, they scored fives. This is not about just electives. This is about bringing education to students. Every single one of these students took the course because it was not offered in their school.

Again, at Center, Colorado, they lost their science teacher. They were not going to find someone who wanted to move to that town anytime soon. The students there were able to meet their science requirement by taking courses in the Virtual High School over the web, being taught by certified, qualified science teachers in other schools around the country.

It is having a huge impact on bush schools in Alaska. Bioethics symposium, business in the 21st century, and connecting mathematics and science to technology, we're finding a very high demand from the students for courses that will help them get ready for their careers in the next millennium.

In this last year, the project has focused on the quality of course design and delivery, and we put together a National Standards Board to establish quality standards for net courses. Essentially, when California went in to look at our courses, and when the Georgia Department of Education went in to look at our courses, they were able to look through every course in the Virtual High School, and approve them at a State level because of the rigor, and because of the quality of these courses.

We need to be focused on quality education over the web when we put together a project like that, and that teacher's say it is the best training they've ever received, and the student's say it is the best course they've been able to take that they weren't offered before. In terms of achievement, they're getting from nothing to something. In short, we offer high-quality, content-rich courses to students in small and remote schools, and I've learned in this project that a small and remote school could be in downtown New York City.

It is asynchronous. It is not video conferencing. It is a rolling conversation. It can't be at the same moment, same time, because we're across 13 time zones. We have American schools in Jordan participating, and students there participating in classes with students in Alaska. What this has done is leveled the playing field. Those students who characteristically sat in the back of the class and did not put their hand up, find that they do not have to risk answering a question and be jeered at by their peers. It is very safe.

We're reaching schools that value what we're doing. I mentioned Center, Colorado. We have schools in Forks, Washington, Tia Maria, New Mexico, and the upper peninsula of Michigan that I was talking to Mr. Kildee about before we began this session. It is bringing them opportunities, and bringing those students access to education never before imagined.

It scales well. Ohio, Georgia, and Massachusetts have elected to try to have every single high school in their states participate in the Virtual High School. I was last week in Michigan talking with people about the very same initiative.

This project and the Challenge Grant Program should continue to receive funding. This is just one, and there is going to be a tape that describes 12 others that I was responsible for having a film made about. The Challenge Grant program is pushing the envelope of education, and the teachers out there who are participating because it is a competition, because it is a privilege, and not because it is some right that they have, are self-selecting, and self-electing to grab hold and run everybody forward.

Technology is here to stay, and I like to say that those people who are participating in the Challenge Grant Program, and those people at the Department of Education responsible for putting it together, realize that the train will leave the station, and we have two choices. We can stay on the platform and wave goodbye, or we can get on.

Now, if I may, I'd like to add some little anecdotes. We have a school in Monroe County, Alabama, that was going to be closed down. It will be allowed to stay open because they are meeting the regulatory standards for a school to have courses, due to the Virtual High School. That school was the core of that community, but it was not meeting State requirements, and it now is because they can reach out and gain the support and collaborative efforts of teachers around the country. It is very powerful in terms of keeping little, local-based schools open, and the teachers love getting to know teachers elsewhere. One of the comments I got back was, "where else can I go to school and take a course about *To Kill a Mockingbird*, being taught by a teacher in the high school from which Harper Lee graduated?"

The Virtual High School is a safe environment, both physically and emotionally. Littleton High School is in our project, and there was a lot of communication back and forth over the last two weeks, and the students were talking about how in this environment, they feel safe to take risks intellectually. We have a physically handicapped student in California who is excelling for the first time in her educational career, and when asked why, she said, "It is easy.; nobody here stares at me."

If I may close with one more quotation from a teacher in New Jersey, and, finally, one from a student. "What I find more remarkable about my student's experience is that they don't feel that they are involved in a distance learning course at all. They feel they are members of a Virtual High School. The difference is most important. They become part of a national community of learners and explorers. They are excited about their education. They share their virtual education with fellow students, and are able to add unique perspectives to regular classroom discussions. They are truly becoming self-disciplined, nationally-oriented students. They have moved far beyond the boundaries of our local high school. Often, the VHS courses are more self-directed, production-oriented, less memory-based educational experiences. They will take these lessons to college and to life. Any program that adds over 100 courses to a high school's curriculum, enhances the student's technological skills, and links them to students and teachers throughout the United States, would have to be considered a great achievement." That from Collingswood High School, Collingswood, New Jersey.

Finally, "My main attraction to the Virtual High School course was its ability to provide me with a class not offered by my school. As I began the course, however, I realized that I was learning much more than just Eastern-Western thought, or music appreciation. I gained an immense knowledge of computers and communication via the internet."

Thank you very much. I hope you'll be able to look more at the testimony here. Is that tape going to work?

[The statement of Mr. Droste follows:]

WRITTEN TESTIMONY OF MR. BRUCE DROSTE, DIRECTOR, THE VIRTUAL HIGH SCHOOL, THE CONCORD CONSORTIUM, CONCORD, MA – SEE APPENDIX G

Chairman Castle. Thank you, Mr. Droste. With respect to the tape, we have to hold on the tape.

Mr. Droste. Okay.

Chairman Castle. This hearing has gone on quite long, and Members have other assignments, so we need to get to the questioning. At the end, we'll try to do the tape. But, if we don't have time for it, we're going to get it out to the Member's offices so they can view it individually.

I will start with the questions, and I will make every effort to keep this under five minutes. Let me just start with Secretary Hickok and Dr. Marockie. Let me just tell you what happened when Mr. Kildee and I were in Delaware two or three weeks ago.

We had a teacher who testified about technology, and the use of computers in the classroom. She was enamored of it. She had actually won a scholarship and had gone off to some school in Delaware for extra studies, and felt that she was pretty knowledgeable, although admitted that she did not start with exactly a computer-based knowledge.

We probed a little bit and asked her a few questions, and she finally said that there were probably about three teachers in her school who were really knowledgeable about the use of computers, which gets into the entire preparation. Yet, you two both, to the credit of Pennsylvania and West Virginia, are talking about remarkable improvement in test scores, and various other things, happening with the use of technology.

My question to you is, is this universal? Have you found a way to make sure that all of your teachers are prepared so that you're able to reflect that in the test scores of the students, or do you run into this problem of the teacher preparation as well? I was impressed by the fact that you seem to be doing as well as you are based on the some of the limitations that I've heard about otherwise.

Secretary Hickok. Well, at least in Pennsylvania, as I stated in my testimony, we think that technology-related instruction is critical for all of the faculty in all of our schools, and individuals who want to become teachers in our schools. So, if you look at a profile of our teaching course in Pennsylvania, the fact is, that while we have a greater saturation in our public school of technology, it is only now become a standard way of doing business for most of our teachers. That is because the younger teachers coming into the schools come with an interest, a talent on technology, and are working with kids from day one who are very much engaged in technology.

Our older teaching force, and we have an older teaching force by and large, is having to be introduced to it as professionals, and it is a little bit tougher for them. But, there are two forces at work there too. You've got the State, through professional development in a variety of different ways. We have governor's schools for teachers that emphasize technology, as well as governor's schools for students. We have CD-ROMs that go out; thirty thousand going out all across Pennsylvania to teachers. We have the web page, et cetera. So, you've got the State trying to use its best efforts and resources to engage teachers, plus you've got their colleagues who are already engaged, and, finally, you've got the students, who, for the first time in the history of this country, the younger generation is way ahead.

Chairman Castle. Let me cut you off. Not to cut you off, because we do want to hear you, but I do want to ask others a couple of questions. You make it sound like Utopia. Are you suggesting that all teachers have that sort of preparation? I assume you're not. I'm interested in the downside as well as the upside.

Secretary Hickok. I think the downside is that for far too many of our teachers, technology is still thought of as an exercise that you might make available to some of your classes and some of your students. That's why Dr. Mann's comment about making sure it is in the classroom is very important. It shouldn't just be in a lab.

Chairman Castle. Right. Dr. Marockie?

Dr. Marockie. Chairman, your point is well taken. Let me go back to 1990, as I indicated. We were advised not to proceed with our basic skills program, because teachers were too fearful and would never use computers in a classroom. That was by a major company in this country at that time. The way we solved our problem was by adopting a philosophy that no teacher would receive the computer in the classroom before the training, and then we adopted the philosophy about the turnkey solution, where we put together the hardware and the software, brought the teachers to the training, and solidified the situation that they were comfortable with the technologies. We were convinced, as I think we're still finding across some places, that there are teachers who don't want to use technology. We're also satisfied in West Virginia that we solved that problem in the K-6 program. As I indicated, every classroom in West Virginia now has four computers, and a teacher using it to integrate the classroom.

We've now moved the program to the secondary schools with exactly the same philosophy. No teacher receives a computer before the turnkey solution is provided, and only then do they receive the computer in the classroom. Now, you're bound to get some resistance, but, by and large, teachers are very receptive to the new mode of how we're going to use this in the classroom.

May I also add one addendum, because someone mentioned learning styles. I believe teachers have figured out that technology is a way to get to different learning styles. They have pointed out to me, and to others, often, where the youngster who will raise the hand all the time in the traditional classroom of teacher lecture will not be the most successful person on the technology, and vice versa. The youngster who can't perform in that auditory environment will be very successful on the technology, and that is what I think teachers are excited about. It really does get to the different learning styles of children. We've been preaching that for a long time in education, Mr. Chairman, but we've never been able to reach that. I think this is one of the things that helps--

Chairman Castle. Let me just ask one more question, and then press on. I'm going to go to the next two gentleman, because they are with great Universities. There was something about teacher preparation and training. Do what you see in your Universities reflect what you are hearing here, in that teachers are now getting more training in the use of technology, in the use of computers? Those teachers being turned out now are better prepared. Should we, in the Federal Government, in terms of the designation of funds as we look at the Elementary and Secondary Education Act and technology, be paying more attention to this, or is it happening naturally so this is not an area that we have to be that concerned about?

Dr. McNergney. My quick response is, no, it is not happening. There is not nearly enough support. There is not enough opportunity there. I think it is extremely difficult to wedge technology training into programs that are already packed. There are a lot of expectations out there, and we look back a year or two with something before technology, there was something that preceded that. There is very little opportunity for people to be able to use technology. It takes a lot of effort, a lot of energy on the part of the faculty, and a lot of cooperation, by the way, and I might point out that we are not notoriously cooperative with one another in all places, so it takes a lot of effort to be able to make that happen.

I think the response to your concern is a two part response. One is simple opportunity. If we can create opportunities for people to take advantage of technology, I believe they will, and I think we're seeing that, and that's nothing new. I think we can look back to the 1980's, and studies done on learning mathematics and learning reading. When children had opportunities to learn to do mathematics, opportunities to learn to read, they did learn. In fact, I think the same thing is true here. The more opportunities we give people to work with teachers who are knowledgeable, the better chance young people will have to perform.

The second part of the response is that it is actuarial. These problems are going to solve themselves if we create more opportunities for young people. As we fade from the scene, my students are much brighter, much more adept than I am. They drag me along behind them, and I think that is going to solve many of these concerns.

Chairman Castle. Professor Mann?

Professor Mann. I'd like to not speak for Teachers College of Columbia University, but for myself in this instance. I'd like to associate myself with Mr. Droste's remarks. I think that what we're looking at is the process in which learning is going to the learner, rather than the historic commerce in which all of the students always had to come to the master's of knowledge and ask those masters the access to understanding. Increasingly, learning is going to go directly to the learner, and that is very different. It also means that we need to think about all of the teachers in a child's life, and all of the settings and places where a child learns. Teacher training is one thing, helping parents be better and more proficient at their job as America's smallest school, and the child's first teacher, is another.

Finally, I think it depends on what the technology is, whether or not you need to invest in training. There are technologies which are pretty transparent. For example, I do my banking through an ATM. I didn't go to a faculty meeting to learn to use an ATM -- thank God I didn't go to a faculty meeting to learn got use an ATM, or I'd still be in the faculty meeting.

[Laughter.]

But, as our technologies become more adept and more transparent, and more easy to use, I think we're going to find the same kinds of things that we found with respect to word processing, it naturally moves to the place where the work is done.

Chairman Castle. Thank you. Mr. Kildee?

Mr. Kildee. Thank you, Mr. Chairman, and thank you for having worked with staff on both sides of aisle to assemble such a great panel of witnesses. This has been a very good hearing. Several years ago in the area of technology, Congress launched out somewhat hesitantly, and sometimes with more hope than knowledge. But, I do think we did some things right, and are still in the process of assembling a top-notch program. The major title III programs are the Technology Innovation Challenge Grant, Technology Literacy Challenge Grant, the Star Schools, which Senator Kennedy championed, and Ready to Learn Television. How could these programs be better coordinated to make them more effective?

Dr. Marockie. Yes, I'd be happy to start. One of the successes that I think we can attribute to the West Virginia program is its standardization. There is the same equipment in all of the classrooms, and there is only two pieces of software. So, once the training is done, you don't have to go back. You know, teachers change buildings a lot. Students change buildings a lot. We never have to go back and re-train those people, because they've already been trained.

The issues that you brought up must, if they're not coordinated in some form of a standardized process, they're going to be fragmented throughout the State of West Virginia. I can assure you that in the State of West Virginia. as I indicated earlier to Chairman Castle, we tried it. We allowed the largest system in West Virginia, who thought they had purchasing power, to put an RFP out for computers under our basic skills program. It was $300 or $400 more per machine than we were able to purchase the same machines at the State level. So, the economies of scales kicks in to every one of those programs that you talked about, and the more coordinated effort you get at the State's role, the more efficient they're going to be, the better they're going to meet the needs of the individual districts out there, and the more coordination you're going to have for standardized programs. Staff development, innovations, all of those can be standardized better.

Mr. Kildee. Is there some way when we reauthorize this program that we could encourage more coordination?

Dr. Marockie. Well, you're doing part of it now. I think Mr. Droste indicated under technology literacy grants, the way you have that one structured is that it goes to the States, and then it goes out for competitive grants, and they come in. That can establish, as my colleague Hickok indicated, that can establish mission and allow the internal ingredients to plug into the State mission on a coordinated State-wide basis.

But, if there is not something guiding the mission of the expenditure of funds, I'm convinced they will be fragmented, just the way they get fragmented at the local district level if there is not some district mission, then they will be fragmented out in schools.

Professor Mann. May I, sir? One of the things that might guide the mission is data about outcomes and data about evaluation. I understand the process that Congress has gone through, that you've been reluctant to look at evaluation data in the early days, and when it may have been premature. But, there is abundant evidence now about outcomes, and it is increasingly possible to govern your decisions and inform your decision by outcomes, and the Congress has used set-asides for documentation and for assessment in other programs, you may wish to consider a version of the same thing here.

Mr. Kildee. In title III, with the possible exception maybe of Star Schools, we indicate that the schools should provide services in an equitable manner to all schools, including the non-public schools. How is that being done in Pennsylvania and West Virginia?

Secretary Hickok. It's being done in virtually every aspect of what we do, both with State and Federal title III funds. What we do is, we have intermediate units in Pennsylvania. So, the intermediate units are the vehicles we use to make sure that public schools, public libraries, colleges, universities, and non-public schools, are part of the same network, going through the intermediate units for the non-public schools.

We're not real big fans, to go back to your previous questions, of a lot of centralized authority in public education in Pennsylvania. But, I will echo the comment made just a second ago. This is all about connections, and the only way that this is going to work is to make sure that you have a very smartly designed system in place. That, we think, is probably the role for the State, and how that varies within the individual school districts, and within the individual schools, might be different, but, in the end you need that state-wide connection to make sure the technology provides the kinds of resources it can provide. So, we think, state direction, and Federal policy that sets the broad goals and gives the States their room to maneuver under that, is the way to go.

Dr. Marockie. Let me give you two great examples for that. The basic skills program, which is funded by the State at a tune of about $7 million a year, that was our phase-in. The title III monies that you allocated was used by the county districts to enhance that program more and expand it faster.

A second part of that is the electronic discount program. The electronic discounts were used for the telecommunication hook-up, the internet hook-ups, and so forth. The title III programs were used for the program content of that. So, you have a great match between the two. The message that can be put into the language is not necessarily a competitive nature, but a matching comparison between the title III, as well as the State initiative, to build a bond for the State mission.

As my good colleague, Dr. Mann, said, the mission can be based upon what results we're attempting to achieve at the State level, which is obviously, I think in every State now, increased student achievement based on the State's standards. We no longer can take ourselves back 10 years ago where State's said, ``Look, we don't know what we want to achieve anymore." Every State now has State standards. Every State knows that if they want to increase student achievement, to match those State standards.

Mr. Kildee. But you are providing services to all students in an equitable manner as required by law?

Secretary Hickok. Right.

Dr. Marockie. And, in fact, in the West Virginia study, as Professor Mann indicated, there were two things very comparable; and the NAEP scores in West Virginia indicate the same thing. The highest achieving Afro-American students in the fourth grade on the NAEP test are in West Virginia. That shows the equity of the distribution. That was because we used the technology in an equitable distribution. The second thing it proved was gender neutrality. The literature on technology that you read about is that males do better than females in technology. Not in West Virginia; they are the same. Both achieved a great deal because of the equitable distribution of the technology and the access.

Secretary Hickok. I want to make sure that I don't go into your point, Mr. Chairman, and paint this picture of peace and harmony all over the place. Let me be honest with you to say that we, in some circumstances, had to really sit down with some public school folks and say, "Look, you're supposed to be working to create a Pennsylvania education network that goes beyond your school district, and that means you have to talk to other people and share resources and leverage resources. This doesn't work if all we do is give you money and you create your own little fiefdom here. Your job is to make sure you are talking to other school districts and non-public schools," et cetera.

That has gradually happened, but I think the natural inclination in many places is when you get new monies, you want to use them the way you want to use them. You can't let that happen if technology is going to work. You have to make sure that there is a broad plan out there.

Mr. Kildee. Thank you, Mr. Chairman.

Mr. Droste. Can I follow onto that just with one point for clarification purposes? First of all, of the 2,000 students enrolled in the Virtual High School this fall, we have a gender balance of 50-50, right across the board, which surprised us.

It is the Technology Literacy Fund which goes to the States. The Technology Challenge Grant Program, which is the other project, is a competition that is on a national basis, and that is the one of which Ms. Austin's program is one, and of which the Virtual High School is one. I sometimes wonder whether I would have a collaboration of State Boards of Education across the country, we are now in 30 States, if I had gone to the State of Massachusetts and said, "would you support an initiative that has us developing courses with schools in other States?"

I think there is a place for both; and I think that one of the real powers of the Technology Challenge Grant, is that it has brought across State lines collaboration, so that I can reach over to Dennis Harper's project in Olympia, Washington, Generation Y, which teaches kids to become technology experts in schools, and bring that to Massachusetts, and he can give it to the other States across the country. I can reach out to the projects in Texas and say, "I want to take the best of what you've done and bring it back to my State." I'm able to bring it back to my State because, at a State level, the Literacy Fund is ensuring that the schools in my State, across my State, are getting the support necessary to have the technology there to receive all this new information. So, there are two very distinct programs, and I think they are both extremely valuable.

Ms. Austin. I would just add one more thing. I think that, as you think about crafting the policy, to echo Bruce's sentiment, in education, we're notorious for under-spending and under-emphasizing research and development, when you compare what the private sector does, and business, on a daily basis. That was the role of the Technology Innovation Challenge Grants. They were a research and development effort through competitive grants to promote the best and brightest models of how we're using technology to improve student learning. I think we've got to find a way to do both. Because, you as policymakers, we as the people at the local level, need to be sure that we keep pushing the envelope, and as the technology changes, we're positioning ourselves to take advantage of it.

Chairman Castle. Thank you. Mr. Tancredo.

Mr. Tancredo. Thank you, Mr. Chairman. The obstacles that you have discussed that are placed in the way of quicker, faster, development of technology in the schools are certainly the area that I want to delve into here, because it seems to me that there is that observable concern on the part of many teachers and administrators that are, as was mentioned earlier, that it is hard for them to get a hold of this new technology. They don't understand it; it is the fear of the new, simple as that may be.

But, it always appears to me that there is also another institutional roadblock to accepting new technology, and it goes to something Professor Mann said, I think. I am really interested to know, for instance, Mr. Droste, how this impacts on what you try to do? The fact is, we have an old industrial model system. That is the way it was built, that is the way we determined we needed it. That is what we needed to bring all of these children into an educational environment that needed to be taught. We build a big brick and mortar facility; we bring all the kids there in yellow buses in the morning; we bring the adults there in cars, and they meet each other for 6 hours a day, 184 days a year, and we call that education. Of course, it is not. It is a process. Sometimes it happens in that process, but not necessarily because of it.

But, we're stuck in that model, and the only thing that is going to get us out of that model, it has always seemed to me, is technology, and the use of it in this system. I have great hope that it is what will break the logjam. But, I also fear that the people who would be naturally opposed to the change in that structure that I just described, let's say the NEA, for instance, or the AFT, or others who are locked into the way we do business now, would not want to contribute -- as you mentioned Ms. Austin -- to the research and development activities, because, after all, it is the fear that the blacksmith had of the automobile, in a way, because they would be displaced.

So, I am really interested to know, especially from you Mr. Droste, in the Virtual High School, have you dealt with this kind of dilemma? How have you dealt with it, and, more importantly I suppose, is there anything we can do in the reauthorization of ESEA to help push the envelope?

Mr. Droste. Well, in part, you're doing it by supporting the Technology Challenge Grant. I would say the smart blacksmith learned how to change a tire very quickly.

Mr. Tancredo. Yes, of course.

Mr. Droste. That is what I see happening in schools across America. We have the first teachers in the Virtual High School project being trained, and they are looked upon by their peers as aardvarks. Then, when they see the recognition the teachers are gaining, the happiness the teachers have, the revitalization that is going on, and the achievement of the students in those classes, what we're finding is, in our second year, we were going to expand by 30 teachers. That is what I thought, that was my model. We expanded by four schools.

The reasons was, in 26 schools, we had the superintendents approach us and say, "Now we have a line of people wanting to do what they're doing." They see a comfortable way to re-tool and to move ahead. Now, one of the things that I very fliply say a lot is that if we can teach old dogs new tricks, let me at the new dogs.

So, this pre-service program that is coming along is very powerful, and that is what I was talking about at Michigan State University. A model where they would make a requirement for the teachers. We have an opportunity; we have a workforce that is going to turn over very quickly in the next 10 years, and we could have an opportunity to have a requirement of a graduate certificate to become a teacher be that those teachers understand technology, how to use it, and maybe even how to teach an online course. That is what I was speaking to at Michigan State University, which is a huge teacher training institution,

Now, for two years, I have had the support, endorsement, of the NEA. They had me down to what I thought was a convention. It turned out it was a meeting of their 12 high mucky-mucks who were saying, "where is this going to go?" And I said, "well, it is not going to go away." So, they have begun to embrace it. They have a person sitting on that standards board that I mentioned earlier. They have a person who comes to any of the meetings that we suggest. We have regional conferences, and we invite them with open arms. They understand that this is the way it is going to go, and that this is their opportunity, if I may be so blatant, to get back into the field of education.

I remember arguing vociferously, as a young whipper-snapper in high school, with a teacher of mine who insisted that we still needed to learn how to use the slideruler. I had a calculator. It was a great big klunky $160 Hewlett Packard calculator, and I said, "No, no, this does all that, and it does it faster, and I don't have to remember all of those lines, and I don't have to wear glasses." He said the slideruler will never go away, and that thing is too expensive. Now, I think we can buy a calculator that will do much more than a slideruler, much quicker, for 10 cents, today.

I think part of it is evolutionary, it is generational, and that with the support for the R&D efforts to see what works -- I have to tell you right now that not every grant works. Not everyone is a success, but as long as the Congress is willing to support going out there and saying, "we want to try out things and see what works."

We didn't think Virtual High School would go beyond being an R&D effort. It is now beyond it. We're scaling way beyond what the grant was supposed to be.

Secretary Hickok. Just to add one more thought, I think what we're undergoing is really a culture shift; that is, redefining the popular understanding of what education is all about. One of the challenges we have is to get people to realize that, for the first time ever through technology, you can really create a system of education which is focused almost completely on students. One of the problems we have in most places is the pre-occupation with the system.

Mr. Tancredo. Right.

Secretary Hickok. And, that is important. But, the fact is, in the end, the system is only there to serve the students. And, technology, and the Virtual High School demonstrates this, you can get away from that now. You can actually focus on every individual's access and potential to succeed. Then the system really does become what it should be, just a vehicle to achieve that kind of success. This technology really--

Mr. Tancredo. Music to my ears. It really is our best hope, honestly. I believe with all my heart that that is the case.

Dr. Marockie. Congressman, no one has been impacted more by what you indicated than West Virginia. We went from 155,000 coal miners to 23,000, producing more coal than the 150,000 because of automation, because of technology. When we would go back just from the agriculture era to the industrial era, the Congress decided that vocational education was very important and passed the Perkins Act. We moved because we created vocational education programs and a variety of combinations of things, to train youngsters for that industrial model that we had, and did it pretty successfully.

Well, now, the national interest is, without question, technology and the information age. It is now, in my judgment at least, the national interest, and it certainly is demonstrating by this committee, and other committees in the Congress, the interest of the United States Congress as the national interest. It will, in five years, be just like the other movements.

The education system has the capability and the talent to respond to the new movement. Just as it responded to going from the agricultural era to the industrial era. It will, in fact, do that, and we'll all be very proud of that. We're just now, simply, in the growing stages.

I want to go back, again, to what it was just nine years ago when we were told that it would never work because teachers in the West Virginia would never use computers in the classroom. Well, we can now refute that dramatically because they're all using it in the classroom, and in a very effective way.

Chairman Castle. Thank you, Mr. Tancredo. Mr. Payne?

Mr. Payne. Thank you very much. I am certainly impressed by what I've heard here today. As we move into the new high-tech area and the reauthorization of the telecommunications act, I am grateful that the E-rate under the access that has been around for a long time was brought into that legislation so that we could connect the schools. Of course, it became a political issue because, for the first time, this universal service which has been in effect since the 1930's to give rural communities an equal playing field, as it relates to the cost of telephone service, because, of course, in the more sparsely populated areas you had a higher cost, so that access, sort of, reduced the cost and shared the cost. But, we found that the E-rate, because of the discount by virtue of poverty level, became a big issue after it was agreed to. But, I'm glad that we've been able to withstand. There was a move to abolish the E-rate and telephone companies put it on their bills that this is an E-rate, you are paying for some poor kid somewhere and we want you to know that. This was the first time that this universal service has ever been broken in the bills.

But, anyway, we're going to try to resist having it appealed, as there is a move on the other side of the aisle to do away with the E-rate. Let me just ask a question, I am particularly interested in the experience in West Virginia, as you indicated, that the African-American students had done better, and I just wonder if you could elaborate on that a little bit. The improvement, is it because of the electronic data? The leveling of the teaching playing field? What do you think? I am very impressed with that.

Dr. Marockie. Let me clarify. That was the fourth-grade mathematics test of the NAEP. They sample 2,500 youngsters in the State, and the 2,500 youngsters take the test. The reason that we're so proud of that one is because that particular fourth-grade group that took the test was the first grouping that went through our K, 1, 2, 3rd-grade years with the computer basic skills program, with the trained teachers, and then took the test. That was the first year. So, we really had a barometer to compare in terms of how well were our youngsters going to do as compared to the rest.

Now, it goes to equitable access for training of the teachers on the turnkey solution, and it goes toward equitable access of teaching in the classroom on again, let me define it, reading, language arts, and mathematics. It just turns out that the math test is what they took. Now, in addition to the Afro-American children being the highest scoring in the country on that time, as a whole, the 2,500 youngsters who took that test in West Virginia, we were 3rd from the bottom of the 40 States who took the test, and 11th in position on the math achievement. We attribute it dramatically to this basic skills program because we never had that kind of participation before.

More directly to yours, it is equitable, and access of the teacher to the training, and then the presentation to the youngsters because they're treated the same as everybody else in the course of the classroom instruction, and they perform, as I indicated, magnificently well.

Mr. Payne. Thank you very much. That is very encouraging. I just wonder, Dr. Mann, I suppose at Columbia University, you probably have courses for administrators. Is there an emphasis on this technology now for administrators to attempt to do projects and measure along, have it quantifiable, as we've seen here in West Virginia? Do you know of any other areas of any of the other persons -- I know there is only one other State superintendent, but if anyone else has any information related to success using the technology?

Professor Mann. There are a variety of sources that document similar outcomes. One of the most interesting is from the software publishers association which has a very current 1999 catalog of effective programs in support of instructional technology. I imagine that they would be happy to make that available to you.

Mr. Payne. Thank you very much. I yield back the balance of my time.

Chairman Castle. Thank you very much, Mr. Payne. This will bring to close our hearing with a couple of caveats.

Let me start by saying this, I would like to thank all of you a tremendous amount. The reason is, of all the areas of education I can think of -- Mr. Kildee has more experience than I, perhaps he can think of others -- I don't know of any which we have seen as rapid change, which is evidenced by the comments almost every one of you has made, in a lot of ways, as technology; particularly in the education of young people, and the application of technology and computers for the education of young people. This is extraordinarily important. The program Ms. Austin talked about, Mr. Droste's whole methodology of teaching differently because of the use of computers and other sites, and other ways of doing this; the programmatic and effective changes all of you have talked about are keenly interesting to all of us.

I guess we're not in the natal stage of all of this, but we're in the next stage up. There are still a lot of developments and work to be done. So, I consider what we're doing in the Elementary and Secondary Education Act to be extraordinarily important in terms of making the right decisions to continue to help you. What we're doing may not be just to continue the programs that are there. It may be some greater flexibility, which seems to be a hallmark of what this Committee has done this year, which I think makes a lot of sense. It could be other changes that we need to take into account.

So, we very much appreciate your testimony here today. We may have other questions. You never get to ask all of the questions you would like to ask; if we did, we would be here until midnight. We, unfortunately, cannot afford that time, with the press of schedules. So, if you will, we may submit some written questions, which if you could answer, would be helpful to us, as well, as well as talking to you at some point in the future about what we are doing -- in other words, as experts to try to help us with that.

Poor Mr. Droste's tape is still pending some place or another. Because I have to go someplace else, as do others, we're going to have to adjourn the hearing, but I believe we have the resources to set that up, and there are some people here in the room who might wish to see it. But, the individual members are going to have access to that tape, so we can look at it when we have more leisure time in order to do that.

I think, with that, we've covered all of the business. Again, we really do thank you. What you said to us is extraordinarily important, and hopefully, we can profit and learn from that, and so can the students in America.

[Whereupon, at 3:29 p.m., the Subcommittee was adjourned.]

APPENDIX A - WRITTEN OPENING STATEMEN OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC

OPENING STATEMENT BY CHAIRMAN MIKE CASTLE
SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES
HEARING ON EDUCATION TECHNOLOGY PROGRAMS AUTHORIZED UNDER ESEA
WASHINGTON, D.C.
MAY 11, 1999

Good Afternoon.

- I would like to take this opportunity to welcome you to the second hearing held by our Subcommittee on an issue that is very important to all of us – the education of our children, and how technology can be used to expand educational opportunities and improve student achievement for all students.

- The first hearing that we held on this issue was conducted in my home State of Delaware.

- At that hearing, we received testimony from Governor Tom Carper, Delaware's Secretary of Education Iris Metts, and nine other State and local leaders in our State's efforts to integrate technology into the classroom.

- The witnesses in Delaware told us of innovative programs and strategies that will lead Delaware's schools into the next millenium.

- We learned a great deal from that hearing, and I look forward to learning a great deal from today's panel of witnesses.

- We hope to come away from this morning's hearing with not only an understanding of how different States and school systems are using technology to improve education, but also with recommendations on how we, at the national level, can better assist States and local communities to use technology in improving America's schools.

- In recent years, funding for education technology programs has dramatically increased at the national level.

- In fact, Federal funding for education technology programs authorized under title III of ESEA alone has increased from $52.6 million in FY 1995 to $698 million in FY 1999.

- However as part of that growing support, so many programs have sprung up that we are faced with a situation where there is inadequate coordination among the programs at the federal level.

- This forces school administrators to waste hours of time and money (in some cases to hire consultants) to fill out applications for federal education technology funds.

- The U.S. General Accounting Office (GAO) has reported that there are over 27 federal programs -- administered by 5 different federal agencies -- which provide funding for education technology to K-12 schools and to libraries.

- Federal assistance ranges from grants to States and local school districts for education technology authorized under ESEA -- to tax incentives for corporate donations of computer technology for elementary and secondary education -- to establishment of the E-rate.

- The primary education technology programs that are under the jurisdiction of our Committee however, are those authorized in title III of ESEA, including:

  ⇒ The National Challenge Grants for Technology in Education; and

  ⇒ The Technology Literacy Challenge Fund.

- However, if we are to be successful in providing the kind of assistance to States and local school districts that will be necessary for the continued successful integration of technology into the classroom, we must look beyond just the programs authorized under the technology title of ESEA.

- We must find a way to consolidate, or at the very least allow States and local school districts to integrate the different funding streams that are available for technology in ways that allow for a truly coordinated and cohesive education technology effort.

- Support for education technology must lead to increased academic performance – not just the presence of new computers in the classroom or access to the Internet.

- Recent studies have found that education technology can have a positive impact on student achievement, but only when used by well-trained teachers.

- In fact, studies on the use of technology in the classroom stress the need for: improved teacher training; the integration of technology into the education process – including curriculum development that effectively integrates technology; adequate access to technology; and careful planning.

- While we are still in the process of determining what exactly we will do with regard to education technology as part of our consideration of ESEA this year, you can expect that technology will be a major focus of any reform.

- It is essential that any reforms in federal education legislation get funding into the hands of local educators in the most efficient manner, so that they can determine the priorities and needs of their students.

- The question is, what is the best way to support successful technology efforts at the State and local level?

- I invite you to work with us in development of the legislation to reauthorize ESEA, and particularly on that portion of the legislation dealing with education technology.

- I look forward to your testimony, I know that it will be most helpful to us in our efforts.

APPENDIX B - WRITTEN TESTIMONY OF THE HONORABLE EUGENE HICKOK, SECRETARY, PENNSYLVANIA DEPARTMENT OF EDUCATION, HARRISBURG, PA

Testimony of Education Secretary Eugene W. Hickok
Subcommittee on Early Childhood, Youth and Families
Pennsylvania's Education Technology Initiatives
May 11, 1999

Thank you for the opportunity to be with you today to discuss the exciting and innovative ways we are using technology to support education reform in Pennsylvania.

Technology is a tool that is changing how we deliver education. When technology is used properly, it has the power to free up more time for teachers to do what they do best: engage our young people in learning.

Gov. Tom Ridge has made technology a very high priority in Pennsylvania. Gov. Ridge continues his historic commitment to education technology by earmarking an additional $34 million in his 1999-2000 budget enacted last week. Link-to-Learn, Gov. Ridge's three-year, $132 million education technology program has brought technology into our classrooms, libraries and community centers – connecting them to each other and to the world.

In just three years, we've increased technology spending 1,500 percent. We've decreased the student to computer ratio to 7.5 students per computer. Our schools evaluate the use and educational impact of technology, and our communities have more access to technology after school than other states. Our teachers receive more technology training than other states, too: we've delivered more than 800,000 hours of professional development to ninety-two percent of our educators.

Improving academic performance has always been the goal of Link-to-Learn, and technology is a tool that enables us to achieve much needed educational reforms, such as academic standards, individualized instruction, and access to more educational resources.

Our experience in Pennsylvania is that technology can indeed improve academic achievement. For example, the Penn-Delco School District outside of Philadelphia realized that their fourth-grade math students were not performing at acceptable academic levels. After the school spent two years attempting a number of reforms, they turned to technology as a more cost-effective, practical option, rather than hiring more teachers. With their educational goal clearly established, they developed a technology plan designed to empower teachers and offer customized learning for each fourth grader.

Using state and federal Title III funding, they purchased computers, installed a network to connect to them to the Internet, and acquired an integrated learning system aligned with both state and national standards. The district trained their teachers on how to integrate this technology as a teaching tool to reinforce the lessons they teach, not replace them.

The results are staggering. Students spend only 15 minutes per day using the technology. Teachers have found that they are able to deliver more customized instruction based upon the individual student achievement reports that are generated daily. Parents are more involved, because they receive the same achievement results. Students are excited because the technology has engaged them in ways traditional teaching doesn't. Perhaps most telling, though, is the phenomenal rise in student standardized test scores – more than 30 percent in one year. The teachers in this district are now able to spend time doing what they do best – teaching, ameliorating the need for lower class sizes and for costly new construction projects.

Research also supports what we have known all along: the single most important factor in the effective use of technology is professional development. Teachers must not only be trained how to use technology, but they also must be trained how to effectively integrate technology into the curriculum.

In Pennsylvania, professional development is at the core of every technology program we do. Every grant requires professional development for teachers. In addition, we've created a website of more than 3,000 pages of lesson plans, guides, tutorials and case studies to help teachers use technology more effectively. Another innovative project at the Indiana University of Pennsylvania combines CD-ROM tutorials, video conferencing to monitor and mentor new teachers, and website tracking to help industry experts become vocational-education teachers.

How, then, should we as policy makers design technology grant programs that ensure our collective $6 billion investment actually produces results in the classroom? We believe that Pennsylvania's state education technology program serves as a model for how states, when given the flexibility, can leverage federal funds to support state academic reforms and improve student achievement.

The Technology Literacy Challenge Fund incorporated several principles that support these efforts. In order to receive funds, states were required to submit state technology plans, describing how they would use technology to support education reform. Over the last three years, we've used $45 million in Title III funds to leverage our $132 million state investment. Federal funds are administered on a competitive basis to local education agencies (LEAs) based upon the same three key requirements that we use to allocate state funds.

In Pennsylvania, we've developed a simplified grant application. Schools first must identify an educational goal and then outline a plan to use technology to meet that goal. This ensures an education use is driving the technology, rather than an equipment "wish list." Second, schools are required to share the technology with the community use after school and during the summer months, leveraging our investments to benefit not just the school community, but the whole community. And finally, all schools must provide professional development to train teachers on how to effectively integrate technology into the curriculum. The funds are considered to be "venture capital investments" and, as such, sustainability of the project is paramount.

Our schools are given the flexibility to determine where this strategic taxpayer investment can improve learning where it's needed most, while at the same time, ensuring the expected results are achieved by placing minimum requirements on grant recipients.

For example, high school vocational students from the rural Sun Area Career and Technology Center demonstrated their craftsmanship to Gov. Ridge recently, when they presented him with a new office computer they built. Students at Sun CTC learn how to build, service and maintain computers using a cutting-edge electronics and computer-systems technology curriculum developed with Technology Literacy Challenge Funds. Using state Link-to-Learn funds, the school built networks for school-wide direct Internet access to deliver this curriculum.

By leveraging these state and federal funds, Sun CTC qualified for a $1.2 million in-kind contribution from the Intel Foundation's processing chip donation program. Sun CTC has since trained more than 20 other vocational schools statewide and provided them with parts from the Intel grant to build and service computers, which they sell to their member school districts.

As a result, 1,000 students have been trained and will build 3,000 computers at a cost of roughly $600 per computer – a 44 percent savings per computer. Sun estimates the disadvantaged schools that purchase the computers through the program will save an estimated $2 million in the purchase of new computers. At the same time, Pennsylvania students are learning valuable skills needed to fill an estimated 8,000 to 10,000 technology jobs currently unfilled in Pennsylvania.

We also harnessed the flexibility in Title III to use $2 million to develop a new program called Pennsylvania Digital Grassroots. Modeled after two successful programs in Canada, the Digital Grassroots program provides mini-grants from $15,000 to $30,000 for students to design and develop websites featuring unique aspects of their community, giving local businesses and community resources an online presence. Lesson plans accompany the website to assist other teachers with using the digital materials in their lessons. Through these funds, schools are building online job banks, virtual town centers, webcasting the Little League World Series, and promoting tourism by digitizing historical and natural landmarks.

At the state level, we are harnessing technology to support Gov. Ridge's aggressive education reform agenda. Pennsylvania recently enacted rigorous, new academic standards in reading, writing and mathematics for students in grades three, five, eight and eleven. We developed a unique PSSA Classrooms Connections Kit, a "toolbox" to help schools align their curriculum with the new standards and to help teachers to integrate the standards into their classrooms. The key element of this toolkit is a CD-ROM, and a special website, which contain everything from sample lesson plans for teachers to test-taking tips for parents and students.

To promote accountability, we developed nationally recognized school profiles and made them available to schools, parents, libraries and the world on the Internet, reducing a six-feet high pile of paper to a single CD-ROM. For the first time, parents and communities have 24-hour access to a wealth of information, including class size, graduation rates, standardized test scores and teacher absenteeism rates.

States, when empowered with the flexibility to determine their own spending priorities, can successfully design programs that leverage their own investments to support school reform and produce results measured by increased student achievement.

In recent months, much discussion in education technology has centered on teacher quality and teacher training. In particular, a recent study by the U. S. Department of Education's National Center for Education Statistics concluded that teacher-preparation institutions aren't adequately preparing our teachers for the rigors of the 21st century classroom. The same day that study was released nearly one-fourth of our colleges of education received $5.4 million in state Link-to-Learn funds that emphasize teaching with technology, rather than teaching about technology, and establish minimum technology competencies for new teachers.

As you work toward reauthorization, I encourage you to adopt the principle of empowering the states. Our children are best served if you enable the states, working with parents, teachers, school boards and concerned citizens at the grassroots, to direct federal resources where they are needed most. Establish a framework that enables the states to tailor education policies to meet their unique and individual needs of their children, while furthering national educational objectives. States always have set educational priorities, but federal education dollars can, and should, be used to leverage state initiatives and reform.

States are uniquely positioned to administer federal technology funds. The Technology Literacy Challenge Fund has been a good example of how Congress can set broad goals and then allow states to use the funds to achieve those goals through state selected priorities, enabling us to pass on the flexibility to our local schools.

It recognizes that a "one size fits all" approach does not work in educational technology, when schools have unique educational needs. A rural school may have a higher priority on distance learning equipment, while an inner-city school may have a higher priority on having computers and Internet access.

Hold states accountable for prudent and responsible use of funds. Accountability should and must be demanded. And, even with technology programs, school districts must be held accountable for how technology is being used to improve student achievement, rather than for increasing the amount of technology available.

We must ensure that our technology funding programs are flexible enough to accommodate changes in the technology itself. Thank you for the opportunity to share some of my thoughts and experiences with you today.

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APPENDIX C - WRITTEN TESTIMONY OF DR. HENRY MAROCKIE, STATE SUPERINTENDENT OF SCHOOLS, WEST VIRGINIA DEPARTMENT OF EDUCATION, CHARLESTON, WV

WEST VIRGINIA DEPARTMENT OF EDUCATION
Dr. Henry R. Marockie, State Superintendent of Schools
Building 6, 1900 Kanawha Blvd. E., Charleston, West Virginia 25305-0330
Phone: 304-558-2681
Fax: 304-558-0048
http://wvde.state.wv.us

West Virginia Board of Education
mes J. MacCallum, President
ary G. White, Vice President
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Michael D. Greer
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U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON EDUCATION AND THE WORKFORCE

TESTIMONY BEFORE THE SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES

MAY 11, 1999

Dr. Henry R. Marockie
State Superintendent of Schools
West Virginia Department of Education

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to speak about the impact of federal funding for learning technology and the importance of including a learning technology program in the reauthorization the Elementary and Secondary Education Act.

We have heavily invested federal, state and local funds for learning technology. This year, West Virginia had two independent studies validate the effectiveness of our technology program and its impact on student achievement. The first study was commissioned by the Milken Family Foundation of Los Angeles and conducted by researchers from Columbia University led by Dr. Dale Mann.

In their findings, West Virginia's Basic Skills/Computer Education Program–which is considered the nation's most comprehensive statewide approach to computer education–is cited for its effective use of technology that led directly to significant gains in math, reading and language arts skills for elementary students. The objective of this program was to use the computer as a tool for improving basic skills and to provide comprehensive teacher training on using the computers in the classroom. The "turnkey" solution implemented in West Virginia is central to the program success. Additionally, the study noted that educational gains through technology are cost-effective and increased socio-economic and gender equity.

West Virginia had across-the-board increases in the statewide assessment scores in all basic skills areas, and our NAEP scores have improved. In fact, in 1996 West Virginia was one of only two states cited in three categories of improvement in NAEP mathematics achievement.

Another study by the Center for Children and Technology of New York analyzed the West Virginia Department of Education/IBM "Reinventing Education Program," a $2 million grant that focuses on using the Internet to improve student achievement.

Researchers discovered increased student motivation, participation and achievement with the greatest impact among students who are traditionally poor performers and those who have no access to computers at home.

These two studies reaffirmed that using the "turnkey" approach and concentrating specifically on basic skills development made a significant impact on the success of these two important technology initiatives. Additionally, both these technology initiatives have helped reduce the "digital divide" between poor and affluent students.

Without a doubt, federal funding for technology has enabled West Virginia to make tremendous strides in providing learning technologies in classrooms all across the Mountain State.

Federal Title III programs which support state and local educational technology are well-targeted to provide a pivotal component of educational reform. Plans for technology and the professional development needed to use technologies effectively are integrated with state and local plans for reform. This means the Title III funds support our own state efforts, together with other critical federal investments in educational quality-Title VI Innovative Strategies, Eisenhower math and science, Goals 2000 and Title I.

The Technology Literacy Challenge Fund..or TLCF...has provided $5,500,000 in the first two rounds of funding. Over 75% of West Virginia's local education districts have applied for the TLCF in rounds one and two. Applications have just been received for round three and we expect that percentage to soar to nearly 95%. The evaluation of round one alone indicates that the funds have had an impact on 1,591 teachers and 26,630 students. We expect similar results for rounds two and three. The funds provide grant recipients with the hardware, software, connectivity, infrastructure and training necessary for a technology solution that focuses on improving student achievement. In fact, more than 50% of the funding that West Virginia received through the TLCF was used by local education agencies to further implement the successful Basic Skills/Computer Education Program mentioned earlier.

I strongly urge you to continue the technology funding under the Title III, Part A, program in ESEA. The program should provide allocations to states and authorize districts in the states to pursue competitive grant applications. This competitive grant program requires that local districts think through their priorities and present their plans and best case for using the Title III funds linked with local and state resources for technology. This is truly a case where targeted federal funding is used effectively at the discretion of state and local decisionmaking. The states have flexibility to deliver innovative and effective programs that help all students reach high standards.

Successful use of technologies requires critical mass and economies of scale across schools and school districts. The design of networks, systems and delivery of services across a geographically large and mountainous state, such as ours, requires statewide and regional planning and delivery. Our local districts look to the state education agency to acquire and provide the hardware, software and training they need to use computers effectively and link classrooms across the state. Quality and efficiency would be lost if we in West Virginia had to approach this on a district-by-district or school-by-school basis. The state role is essential.

Although consideration of the universal services discounts for schools and libraries under the Telecommunications Act of 1996 is not before your subcommittee as part of the ESEA reauthorization, I want you to know how essential the discounts are to paying the costs of telecommunications and Internet service and internal connections in the schools.

Title III, Part A and the discount program genuinely complement each other. The discounts pay for the continuing on-line costs while Title III is essential for developing the programs and instructional services, providing professional development, and designing and operating the learning technology systems. We need both.

I thank you for the opportunity to participate in this hearing and welcome your questions.

Dr. Henry Marockie
West Virginia Superintendent of Schools

Dr. Marockie was named State Superintendent of Schools in West Virginia in 1989. Before assuming that position, he was a highly successful superintendent of a local county school system.

Dr. Marockie serves as vice chair of two significant national boards dealing with technology rate discounts for schools and libraries: the Universal Service Administrative Company (USAC) and the Schools and Libraries Division (SLD).

Dr. Marockie was elected national chairman of the Compact for Learning and Citizenship in conjunction with the Education Commission of the States through a grant from the Kellogg Foundation. He also serves on the advisory panel of the National Education Goals Panel and as a member of IBM's ArtsEdTech National Committee for embracing arts through technology.

He is past president of the Council of Chief State School Officers, a nationwide organization comprised of public officials who head the departments of education in the 50 states, and serves as president of the School Building Authority in West Virginia.

He has been instrumental in the success of many major initiatives including the basic skills/computer education program and the WORLD SCHOOL program, a partnership between Bell Atlantic and the West Virginia Department of Education, to bring Internet into the classrooms of West Virginia.

His many honors include a national "Award of Excellence" from the Centers for Disease Control and Prevention for his exemplary work in advancing comprehensive school health programs in West Virginia and the nation, the West Liberty State College Wall of Fame, Ashland Incorporated's Outstanding Leadership Award and Wheeling Jesuit University's highest honor, the Ignatian Medal.

He is married to Dr. Mary Marockie, director of programs for RESA 6 in Wheeling. They have a daughter, Felicia, regional vice president, marketing, Loews Corporation, NY, NY.

WEST VIRGINIA DEPARTMENT OF EDUCATION

NEWS

Contact: Kim Nuzum-Lawrence
Phone: 304-558-2699 FAX: 304-558-0882

March 23, 1999

FOR IMMEDIATE RELEASE

WEST VIRGINIA TECHNOLOGY PROGRAM CITED FOR INCREASING STUDENT ACHIEVEMENT

(Charleston, WV) -- West Virginia's Basic Skills/Computer Education program has made a major impact on student achievement, as detailed in a study released today by researchers from Columbia University. Commissioned by the Milken Family Foundation of Los Angeles, an independent research team studied the effectiveness of the state's 10-year learning technology program that has placed computers in every kindergarten through sixth grade classroom.

"The objective of West Virginia's Basic Skills/Computer Education program was to use the computer as a tool for improving the basic skills and to provide comprehensive teacher training on utilizing computers in the classroom," indicated State Superintendent Dr. Henry Marockie. "The results of this study clearly show that the investment of time, training and resources has reaped tremendous benefits in terms of student achievement."

The West Virginia program was cited for its effective use of technology that led directly to significant gains in math, reading and language arts skills. The study noted that educational gains through technology were cost-effective and increased socio-economic and gender equity.

"The turnkey solution, which coupled intensive professional development with the installation of standardized hardware and software truly made this program succeed," said Marockie. "Teachers embraced the technology because they were able to acquire the background, knowledge and expertise to make it happen."

-more-

Marockie also credits the Office of Technology in the state Department of Education for the program success. "The staff members worked tirelessly to ensure swift and efficient implementation of computers and provided valuable training and support," Marockie noted.

West Virginia's Basic Skills/Computer Education program was implemented in 1990 and is considered the nation's most comprehensive statewide approach to computer education. Since implementation, student scores have risen steadily on both the state standardized testing instrument and the National Assessment of Educational Progress (NAEP). In fact, in 1996 West Virginia was one of only two states cited in three categories of improvement in NAEP math achievement.

Two providers–IBM for the hardware which was standardized throughout the state–and IBM and Jostens Learning for the software–allowed teachers the choice to select packages that best fit their local needs and philosophy. "The partnerships forged with IBM and Jostens allowed West Virginia to create a dynamic standardized program that allowed choices and targeted specific basic skills needs across the state," Marockie noted.

"Financial support received from the West Virginia Legislature is an indication of the shared dedication to bringing technology into schools in an equitable way," Marockie emphasized. "The vision of former Gov. Gaston Caperton to implement the Basic Skills/Computer Education program...the leadership of Gov. Cecil Underwood to continue technology utilization into the secondary level...the steadfast commitment of the State Board of Education for higher standards and academic achievement...and the manner in which teachers and staff enthusiastically embraced the technology...have all contributed to West Virginia's national profile as a leader in technology."

###

Milken
eXCHANGE
on education
technology

Contact: Johnny Cho (310) 998-2871
Kibibi Springs (310) 998-2805

West Virginia Study Finds Direct Link between Effective Use of Learning Technology and Higher Academic Achievement

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Milken Exchange Assesses Effectiveness of Nation's Longest-Running State Learning Technology Program

(Santa Monica, CA) – The effective use of learning technology has led directly to significant gains in math, reading and language arts skills in West Virginia, according to a new study released by the Milken Exchange on Education Technology.

The study, conducted by Professor Dale Mann of the Teachers College at Columbia University, Professor Charol Shakeshaft of Hofstra University, and a team of education researchers, marks the first time that a long-term statewide learning technology program has been assessed for its effectiveness. The researchers examined West Virginia's Basic Skills/Computer Education (BS/CE) program, whose objective was to use the computer as a tool for improving the basic skills and to provide comprehensive teacher training on utilizing computers in the classroom. The program's ten-year history makes it the nation's longest-running state program for the implementation of technology in education.

"West Virginia's BS/CE program deserves our scrutiny because of its scale, consistency and focus," said Cheryl Lemke, executive director of the Milken Exchange. "The issues of system design, training, technology capacity, technical support, and means of measurement are all powerfully present in the West Virginia experience, and provide important lessons for other states making investments in learning technology."

(more)

1250 Fourth Street · Fourth Floor · Santa Monica California 90401-1353
Telephone 310·998·2825 Facsimile 310·998·2899
www.milkenexchange.org

Included in the study was a survey of West Virginia teachers, 48% of whom saw technology as the key reform that resulted in higher achievement in the areas of math, reading and language arts.

The West Virginia BS/CE gains in basic skills complement the findings in "Technology Counts '98," a joint project by the Milken Exchange and *Education Week* released in October 1998. That report links computers to higher scores by eighth-graders in problem-solving and critical thinking, but only if the technology is placed in the hands of trained teachers who use it in the most productive ways. The two studies taken together show that learning technology can advance both the basic skills of reading, writing and mathematics as well as students' ability to think critically and creatively.

Another significant aspect of the study was that the educational gains achieved by West Virginia's learning technology program proved to be cost-effective. In fact, an analysis of effect sizes conducted by Dr. Lew Solmon, senior vice president and senior scholar of the Milken Family Foundation, revealed that the implementation of learning technology was significantly more efficient than other popular interventions such as class size reduction.

"Governors and legislators must often decide among a variety of interventions," said Dr. Thomas C. Boysen, senior vice president of education at the Milken Family Foundation. "It is important for them to know what they might get from their investment in learning technology."

West Virginia's program also increased socio-economic and gender equity. The Milken Exchange study found the state's BS/CE program to be highly successful in equalizing opportunity for low-income and rural students, and revealed that the greatest improvement in total basic skills was achieved by children without computers at home.

West Virginia's program was also found to be effective in providing girls – widely reported to be at a disadvantage in learning technology programs – with equal access to computers; as a result, computer use was equal among boys and girls.

(more)

The study identifies several reasons why West Virginia's program is effective:

- Rather than isolating computer skills from academic learning, West Virginia's BS/CE program integrated technology into the instructional program. In other words, the technology was a means of learning the basics, not an end in itself.
- The report revealed that the computers inside classrooms were more effective than centralized computer labs in producing basic skill gains in students and in promoting the confidence and technological competence of teachers.
- The report also revealed the importance of timely and comprehensive teacher training as a key factor in the success of West Virginia's technology program.

The Milken Exchange urged that the West Virginia findings be interpreted cautiously by educators and policy-makers because:

- BS/CE was launched before powerful computers, high-speed transmission lines and the Internet were available in schools. Today's technology can support a much wider array of instructional applications.
- BS/CE was designed to accommodate the learning and teaching realities of West Virginia. That does not make it appropriate for every district or state where the characteristics of learners and teachers may be quite different.

"The goal of the Exchange in commissioning the study was not to praise or criticize West Virginia's program, but to understand it and to make that understanding known to others," said Lemke.

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APPENDIX D - WRITTEN TESTIMONY OF PROFESSOR DALE MANN, PROGRAM IN EDUCATIONAL ADMINISTRATION, DEPARTMENT OF ORGANIZATION AND LEADERSHIP, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, NY

INSTRUCTIONAL TECHNOLOGY:
STUDENT OUTCOMES AND SUCCESSFUL IMPLEMENTATION

Testimony Prepared for the
U.S. House of Representatives
Committee on Education and the Workforce
Subcommittee on Early Childhood, Youth and Families
Tuesday, May 11, 1999

by

Dale Mann, Ph.D., Professor
Program in Educational Administration
Department of Organization and Leadership
Teachers College, Columbia University
New York, New York 10027-6696

Two questions are frequently asked about instructional technology: does it work? and, if it does, how can those successes become more widespread? Three recent studies respond directly to those questions.

TECHNOLOGY INSTALLED BASE: The Mohawk RIC, New York State Study (1997)

Schools with more instructional technology and more professional development had the following improvements:

- MATH: there was a 7.5 percent increase in the number of high school students taking and passing the Regents (college prep) Math exam
- ENGLISH: there was an 8.8 percent increase in those who took and passed Regents English
- OVERALL: 42 percent of the variation in math scores and 12 percent of the variation in English scores can be explained by instructional technology (hardware + its use)

[Data: 55 districts in the Madison-Oneida region of up-state New York; 4,041 teachers; 1,722 students, 159 principals; and 41 superintendents. Source: Dale Mann and Edward A. Shafer, "Technology and Achievement" AMERICAN SCHOOL BOARD JOURNAL, v 184, n 7, July 97, 22-23.]

TECHNOLOGY EFFECTS OVER TIME AND ACROSS DISTRICTS: West Virginia (1998)

A state-wide seven year program of instructional technology (the "Basic Skills/Computer Education") yielded:

- ten percent of the gain score growth for 5th graders in 1997-98 (year six)
- thirty-three percent of the total "school accessible growth"
- West Virginia went from #33 to #17 on the American states ranked by achievement
- Ranked by per capita income, West Virginia is #40: ranked by achievement, #17
- The Basic Skills/Computer Ed program tripled the speed of West Virginia's student achievement gains, from 1.5 points (3d grade CTBS) per year to 5 points/year

[Data: 16 schools; 950 students; 290 teachers. Source: Dale Mann, Charol Shakeshaft, Jonathan Becker, Robert Kottkamp, "THE WEST VIRGINIA STORY: ACHIEVEMENT GAINS FROM A STATEWIDE COMPREHENSIVE INSTRUCTIONAL TECHNOLOGY PROGRAM, Santa Monica, Milken Educational Exchange on Technology, 1999.]

HOME-SCHOOL-HOME CONNECTIONS: Adams County 50, Colorado (1998)

Using the Lightspan Partnership's CD-ROM-delivered, broadcast quality, "serious play" curriculum of the home and comparing three schools with that curriculum to three without it,

- **every school using Lightspan outperformed similar schools that did not**
- **children's achievement in reading/language arts and Math increased with Lightspan (CTBS scores: + 14 points in Math; + 8 points in Reading)**
- **when children are grouped by quartiles of school achievement, Lightspan schools outperformed control schools in three of the four quartiles**
- **Lightspan students in the lowest quartile outperformed the 1997 and 1998 all-student averages in both Math and Reading, and**
- **parents report that their children are using Lightspan to extend learning time in the home (less TV and more 'homework').**

[Data: 346 third grade students and 750 parents in 3 matched pairs of schools ranging from: 25% to 74% at or below poverty; 39% to 79% Caucasian; and 12% to 50% Hispanic. Dale Mann, Charol Shakeshaft, Jonathan Becker, Robert Kottkamp, "If Schools Account for Thirty Percent of Test Score Variation and Families Account for Seventy Percent, Then What Is a Hundred Percent Solution?" (In review).

Conclusions

The first conclusion is that instructional technology works. We can associate important gains in student performance with instructional technology.

The second conclusion is that instructional technology works ONLY if there is a critical mass. Dropping student:computer ratios from 16:1 to 14:1 does not help but 4:1 does make a difference.

The third conclusion is that we know how to implement instructional technology in ways that yield student improvement similar to that reported here. That implementation can be described as "CDS":

[C] Concentrated (a critical mass, follow through strategies)

[D] Distributed (computers moved past labs and into classrooms) and

[S] Sustained (both funding and professional development consistently provided up the grades and over time).

Note: The research reported here has been supported by the following organizations: the Mohawk Regional Information Center, Madison-Oneida Board of Cooperative Educational Services, Verona, New York; the Milken Exchange on Educational Technology, Milken Family Foundation, Santa Monica, California; and the Lightspan Partnership, Inc., San Diego, California. Conclusions and recommendations are those of the author and do not represent those organizations.

Dale Mann, Ph.D.,
P 516 547 0464
F 516 547 0465
E interinc@aol.com

Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: DALE MANN

1. Are you testifying on behalf of a Federal, State, or Local Governmental entity?	Yes	[✓ No]
2. Are you testifying on behalf of an entity other than a Government entity?	Yes	[✓ No]

3. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1996:

NONE: see attached for Teachers College, Columbia University

4. Other than yourself, please list what entity or entities you are representing:

NONE

5. If your answer to question number 2 is yes, please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question number 4:

6. If your answer to question number 2 is yes, do any of the entities disclosed in question number 4 have parent organizations, subsidiaries, or partnerships to the entities for whom you are not representing?	Yes	No

7. If the answer to question number 2 is yes, please list any federal grants or contracts (including subgrants or subcontracts) which were received by the entities listed under question 4 since October 1, 1995, including the source and amount of each grant or contract:

Signature: Date: 5.6.99

Teachers College Columbia University
List of Active Federal Grants

Grant	Fund	Organization	Title	Amount
511109	550113	111681	Ed of Indivls w/Disab:Interp of Thm	$40,660
511110	550065	117111	ERIC Clearinghse on Urban Ed 93/98	475,031
511112	550123	111381	Project Synergy: Outreach	6,925
511114	550202	111386	Cultural Interchange in Urban Schls	175,151
511115	511115	111386	Research on Conditions of Teaching	383,253
511116	511116	111881	Critcl Thnkg Instr/Students w/Disab	120,679
511217	511217	111581	MA Program in Hearing Impairment	25,743
511217	550103	111581	MA Program in Hearing Impairment	46,721
511218	511218	111581	Prep. of Leadership Pers.in Sch.Psy	3,048
511218	550094	111581	Prep. of Leadership Pers.in Sch.Psy	23,968
511219	550233	111681	SIPA - African Studies	3,177
511219	550234	111681	SIPA - African Studies	4,968
511221	511221	111181	Bilingual Ed. Teachers & Personnel	60,063
511999	550223	112294	College Work Study	276,638
511999	550225	112294	College Work Study	35,057
512102	550034	111581	Opthalmic Complications Prev Trial	286
512102	550035	111581	Opthalmic Complications Prev Trial	88,141
512103	550054	111883	Role of Maternal Charac on LBW Inft	1,011
512104	550044	111581	Hispanic Heart Healthy Milk Prog	68,356
512105	550084	111883	Child Wellbeing Network Consortium	43,828
512105	550085	111883	Child Wellbeing Network Consortium	370,796
512107	550224	111883	Adolescent HIV Risk - Univ. of Ill.	5,846
512110	550133	111883	Behav. & Physl. Processes	1,487
512110	550134	111883	Behav. & Physl. Processes	229,760
512113	550262	111881	S. Luthar Career Award (K-21)	146,155
512114	512114	111781	Huntington's Motor Control	3,221
512114	550242	111781	Huntington's Motor Control	11,479
512115	550292	111881	Maternal Drug Use	253,992
512116	512116	111883	Emotional Health Sub-Study	33,209
512202	550012	111581	Professional Nurse Traineeship Prog	17,693
512203	512203	111883	Hongxin Zhao Research Fellowship	16,969
512203	550212	111883	Hongxin Zhao Research Fellowship	9,099
512204	512204	111581	Science Health Literacy	191,519
513104	513104	111883	Yonkers Public Housing (NSF)	39,023
513105	513105	111781	Hand Motor Control (NSF)	25,591
513106	513106	111881	Math Program for Pre-K (NSF)	8,267
513107	513107	111681	Urban Science Education	9,894
514203	514203	117111	Project SOL - NEH	37,018
515201	515201	111181	Overseas Educational Advisers	66,280
515202	515202	114001	Parent Involvement Guide	15,478
515203	515203	111181	U.S. Based Training (USIA)	115,636
Totals				$3,491,116

TEACHERS COLLEGE
COLUMBIA UNIVERSITY
DEPARTMENT OF ORGANIZATION AND LEADERSHIP
EDUCATIONAL ADMINISTRATION PROGRAM

Dale Mann

Dale Mann is a political scientist who specializes in education policy---both analyzing it and acting on it. A former special analyst in the Executive Office of President Johnson, Professor Mann is currently working on learning technology.

Dr. Mann works with school districts on planning and implementing instructional technology. Through his company, Interactive, Inc., he evaluates technology initiatives as diverse as the seven-year, State-wide legislative program in West Virginia and private sector curriculum and software development efforts.

A decade ago, Dr. Mann formed a company, Interactive, Inc. to develop and publish technical solutions to learning problems.

- **The Company built "*What's Next?*", the first video game for at-risk students.**
- **With Japan's largest educational publisher, Interactive, Inc. produced the design and performance specifications for a video game + print "curriculum of the home".**

Dr. Mann is currently working to speed the convergence of the entertainment, technology and education sectors of Australia; evaluating the impact of instructional technology on school achievement in American states; and assessing a major product launch dealing with learning in American homes.

The author of three books and more than a hundred articles, Dale Mann is the founding chair of the International Congress for School Effectiveness, an organization with members from 63 countries dedicated to better schooling for children from the most needy families. With the support of the Soros Foundations, he has provided management training for 1,250 school administrators in Russia, Ukraine, Belarus, Estonia, Macedonia and Kyrgyzstan.

Professor Mann is a member of the senior faculty at Columbia University where he works to advance education in schools, homes and workplaces and with public and private sector partners.

BOX 67, 525 WEST 120TH STREET, NEW YORK, NY 10027-6696 • (212) 678-3726 • http://www.tc.columbia.edu/~academic/o&l/dept/edadmin/

APPENDIX E - WRITTEN TESTIMONY OF DR. ROBERT MCNERGNEY, PROFESSOR OF EDUCATIONAL LEADERSHIP FOUNDATIONS AND POLICY, CURRY SCHOOL OF EDUCATION, UNIVERSITY OF VIRGINIA, CHARLOTTSVILLE, VA

Robert F. McNergney
University of Virginia
276 Ruffner Hall
Charlottesville, VA 22903
804-924-0749
rfm@virginia.edu

Tuesday, May 11, 1999, 1:30 p.m.
Subcommittee on Early Childhood, Youth and Families
Room 2175 Rayburn House Office Building
Washington, D.C.

Technology reminds me of baseball. Casey Stengel managed the New York Yankees for about a dozen years. He finished his career managing the Mets in 1965. Stengel's eye for talent was as sharp as his wit. Once when he was with the Mets a reporter asked him about the future prospects for two of this twenty-year-old players. Stengel replied, "In ten years, Ed Kranepool has a chance to be a star. In ten years the other guy has a chance to be thirty."[i]

To make sure the Nation's teachers and students do more than just grow older imagining what it must be like to be good with technology, we to need to concentrate on three factors: talent, opportunity, and support.

1. Talent. People from all sorts of neighborhoods and communities have the talent to learn about and with technology. Literature on the use of technology to help people learn is massive and growing. I draw your attention to an excellent review of the research by Andrew Dillon and Ralph Gabbard of Indiana University published in 1998.[ii] In brief, they conclude that the benefits of emerging technologies are limited to the kind of learning that depends on repeated manipulation and searching of information. Moreover, these benefits differ according to learners' abilities and to their preferred learning styles. Clearly, the research is only beginning to provide solid leads for practice. In short, we know that technology can have positive effects on learning, but it is not a panacea.

Increasingly, however, "talent" means being able to integrate technology into teaching and learning.[iii] The new phrase beginning to supplant "computer literacy" is "computer fluency."[iv] Teachers need to integrate technology into life in classrooms--they need to become fluent in technology use--if they are to help their students do the same.[v]

The Computer Science and Telecommunications Board makes evident the challenge.

> "Literacy is too modest a goal in the presence of rapid change, because it lacks the necessary 'staying power.'... People fluent with information technology... are able to express themselves creatively, to reformulate knowledge, and to synthesize new information. Fluency with information technology... entails a process of lifelong learning in which individuals continually apply what they know to adapt to change and acquire more knowledge to be more effective at applying information technology to their work and personal lives."[vi]

2. Opportunity. There are approximately 1300 colleges of education that prepare preservice teachers. About 200,000 teachers enter the profession each year.[vii] With the turnover rate of teachers in their first five years on the job, and with the impending retirement of about 1,000,000 more, the challenge of educating preservice teachers to use technology effectively is considerable. When we contemplate the challenge of providing professional development in technology to about 2.2 million inservice teachers, the adjective "daunting" springs immediately to mind.

As chair of the Technology Committee for the American Association of Colleges for Teacher Education I have met and worked with many people from colleges and universities across the Nation. My informal observations suggest that few institutions, programs, and people are doing any more than training teachers in basic technology skills. These conditions exist not for lack of interest, but because teachers and teacher educators already have too much to do. Opportunities to learn with and about technology compete with scores of other demands. When colleges, universities, and public school systems have the funds to create opportunities for preservice and inservice teachers to work with the latest technologies and the best teacher educators, we will have greater numbers of technologically proficient teachers and students. The Education Department's initiative entitled "Preparing Tomorrow's Teachers to Use Technology" seems like a step in the right direction, but it is relatively small and limited to preservice teachers.

3. Support. Standards for technical competence, both for teachers and their students, abound. We have them in Virginia. School districts from Fairfax to Danville are ramping up to meet the Virginia standards and doing so admirably. But standards do not automatically ensure that either teachers or young people will use technology often or well. People need material and human support to become fluent in the use of technology. At the University of Virginia, our preservice teachers work with technology every semester they are in our five-year teacher education program. They use technology to enhance teaching and learning in many different ways. We also prepare inservice teachers and school administrators to teach and learn with us online.'[viii] Inservice educators learn how to learn using case methods, much as professionals are prepared in law, business, and medicine. These professional educators use techology to solve real problems presented in the form of cases, and they communicate with one another about the cases using the latest Web technologies. Teachers take advantage of these opportunities, because they have the human and material support to do so.

When the reporter asked Casey Stengel about managing, Stengel replied: "Managing is getting paid for home runs someone else hits." Leaders today who recognize technical talent, who create opportunities for that talent to blossom, and who support its continued development may not be as famous as a baseball legend, but they will surely be doing good work. I respectfully urge you to demonstrate such leadership by providing funds for professional development for teachers. Encourage teachers to work together and with others outside their systems to learn how to model intelligent technology use for their students.

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[i] Stories about Stengel have been passed around for a long time. If I remember correctly, Clifton Fadiman told them best.

[ii] Dillon, A., & Gabbard, R. (1998, fall). Hypermedia as an educational technology: A review of the quantitative research literature on learner comprehension, control, and style. Review of Educational Research, 68 (3), 322-349.

[iii] Milken Exchange on Educational Technology. (1999). Will new teachers be prepared to teach in a digital age? A national survey of information technology in teacher education. Milken Family Foundation: Santa Monica, CA.; U.S. Congress, Office of Technology Assessment, Teachers and technology: Making the connection, OTA-EHR-616 (Washington, DC: U.S. Government Printing Office, April 1995).; President's Committee of Advisors of Science and Technology. (March 1997). Report to the president on the use of technology to strengthen k-12 education in the United States.

[iv] Computer Science and Telecommunications Board (downloaded April 25, 1999). Being fluent with information technology. Committee on Information Technology Literacy, Commission on Physical Sciences, Mathematics, and Applications, National Research Council, Washington, D.C.: National Academy Press. http://www2.nas.edu/cstbweb/

[v] Kent, T.W., & McNergney, R. F. (1999). Will technology really change education? From blackboard to web. Thousand Oaks, CA: Corwin Press, Inc.

[vi] Computer Science and Telecommunications Board (downloaded April 25, 1999). Being fluent with information technology. Committee on Information Technology Literacy, Commission on Physical Sciences, Mathematics, and Applications, National Research Council, Washington, D.C.: National Academy Press. http://www2.nas.edu/cstbweb/, p. ES-2.

[viii] Herbert, J.M. (1999, March). An online learning community: Technology brings teachers together for professional development. The American School Board Journal, 186 (3), 39-41.

Robert F. McNergney, professor in the Curry School of Education at the University of Virginia, has also been a faculty member at State University of New York, Potsdam and University of Minnesota, Minneapolis. He has taught and coached in public schools in Iowa and Vermont. Co-author of three books and editor of four, his writing has appeared in the Handbook of Research on Teacher Education, Educational Researcher, Journal of Teacher Education, The Washington Post, and The New York Times. McNergney co-authored the Research Clues column for NEA Today for three years. He chairs the Technology Committee for the American Association of Colleges for Teacher Education and writes the technology column for AACTE Briefs. He has served as secretary of Division K in the American Educational Research Association and as editor of the Division K Newsletter. He has chaired the Commission on Case-Method Teaching and Learning for the Association of Teacher Educators. McNergney teaches courses in foundations, evaluation, writing for publication, and research on teaching. He also teaches a set of Internet-based courses with colleagues in the United States, Canada, and Scandinavia.

APPENDIX F - WRITTEN TESTIMONY OF MS. TERRI AUSTIN, EXECUTIVE DIRECTOR, ORGANIZATIONAL DEPARTMENT, ANDERSON COMMUNITY SCHOOL CORPORATION, ANDERSON, IN

Testimony to the U.S. Congress, House of Representatives,
Subcommittee on Early Childhood, Youth and Families
May 11, 1999

Testimony by
Terri Austin,
Executive Director
of Organizational Development and
Continuous Quality Improvement
Anderson Community School Corporation
Anderson, Indiana 46016

Good afternoon, Chairman Castle and members of the Subcommittee. Thank you for inviting me to participate in this hearing on educational technology and the reauthorization of ESEA. I am Terri Austin, Executive Director of Organizational Development and Continuous Quality Improvement for Anderson Community School Corporation (www.acsc.net) in Anderson, Indiana. For the past three years I have also served as the Project Director for the Anderson Community Technology Now! Project (www.acsc.net/actnow), one of the original Technology Innovation Challenge Grants awarded in October 1995 by the U.S. Department of Education.

Before I begin to address how technology has been utilized to advance reform in Anderson and specifically, in our Challenge Grant Project, I would like to provide you with a brief description of our local school district and the students we serve. ACS is a K-12 public education system in central Indiana. We are 12th largest urban school district in the state. We have a student population of 10,693 students and employ 1,277 staff members. We have 15 elementary schools, 3 middle schools, 2 high schools, 1 vocational/technical school, and 2 alternative school programs. The percentage of students participating in the National Free and Reduced School Lunch Program ranges from a low of 11% to a high of 92%. Our district-wide average is 37%. Student mobility rates within a single academic year range from 24% to 73%

within our individual schools. 79% of our students are white, 19% are black, and 2% are of other ethic backgrounds. 18% of our student population receives special education services.

In October 1995, we were awarded one of the original 19 Technology Innovation Challenge Grants from the Department of Education. Our original consortium included 3 state universities, The Indiana Department of Education, 4 non-profit agencies or institutions, 2 for-profit businesses, and our local workforce development agency. The project combined $2.5 million in partnership contributions, $1.3 million from school corporation resources and $3.1 million in federal funds. Our A.C.T. Now! Project combines the most innovative technology models and resources available at the local and state level with the aggressive systemic reform efforts of our school corporation. We've been recognized at the state and national levels as a demonstration of how the resources and synergy of collaboration and partnerships can be leveraged to impact an entire community.

The partnership contributions and federal funds have supported a comprehensive array of initiatives, all designed to improve the quality of learning experiences provided to students. In addition to the purchase and installation of computers, the project has also included extensive professional development and technology training for local teachers, curriculum development, summer technology camps for students and their parents, family technology training sessions, distance learning opportunities for middle school students, implementation of the Buddy System Project and a Community Technology Center at the local public library. I'd like to take this opportunity to describe some of the most successful aspects of our project for you today.

A portion of the federal funds have helped to support the activities of the Buddy System Project (www.buddy.k12.in.us). Through Buddy we are able to extend the time used for learning beyond the normal 6-hour school day into the homes of students and their families.

Through Buddy, we have provided up to 800 "take-home" computers for students in grades 4-8 in five of our poorest elementary schools, and all three of our middle schools. It's important to note that these 800 computers are impacting over 3,000 students in grades K-12 and their families. Although the price of computers is more competitive than ever before, for a large segment of our population they are still out of reach. We are using Buddy to close the gap between those students and families who can afford to be a part of the information highway and those who cannot. Security and care of the home units has not been a problem. Parents must attend mandatory training sessions to be eligible for participation in the Buddy System Project, and the computers are issued on a leasing basis for $20.00 per school semester. Families may choose to lease the computer over the summer vacation months for an additional $20.00. Families know that if they move from the school district, or from one of the participating schools the computers must be returned. They sign a liability agreement ensuring that the computers will be well-cared for, and the completion of school assignments will be given first-priority. Finally, all families are provided free Internet access through the school corporation's dial up server.

Evaluation data based on reports from parents and students indicate that children's engagement in learning has increased beyond the normal school day, television watching is down, time spent completing school work is up, and parents are using the home computer to improve their own technology-literacy. Some families have used the home technology to go back to school and advance their own educational levels. Our next evaluation focus will be on student achievement as measured through standardized tests and performance-based measures.

Our own local funds went to support the extension of our network into classrooms and the installation of five computers for student use in individual classrooms in grades 4-8 in the project schools. Teachers are provided with a computer and printer they can choose to keep at school, or take home as a part of the project's activities. Over 8,000 hours of professional development and technology training have been logged by the teachers and staff members in this project. Teachers have focused on using the Indiana content standards as the basis for their technology integration efforts. The classroom-cluster approach has helped to promote a new model of technology in schools – one that is more student focused and more easily integrated into the daily curriculum. To increase family involvement in the learning process and improve communication between teachers and principals, every student has an e-mail account that parents can use to communicate with school personnel.

Another valuable partnership within this project is with the local public library and our joint development of the Community Technology Center. CTC is located in the main branch of the Anderson Public Library (www.acsc.net/apl) in downtown Anderson. The Community Technology Center, launched in April 1996, is supported by federal contributions, school corporation resources and the library's own revenue. Although it started with only 10 computer stations with Internet access provided through the school corporation's server, by the fall of 1996 the demand was great enough for the library itself to purchase an additional eight computers. During the school day, the CTC is filled by adults learning to access the Internet and master other basic technology skills; after school you will find many and sometimes their using the Center's computers to do their homework, complete research assignments and advance their own technology skills and knowledge.

Today, the Community Technology Center offers 32 computers (20 through federal funds and 12 through library revenues and other grants) along with an assortment of software and over 300 CD Roms for public use. In 1998, at least 19, 527 people used the computers in the Community Technology Center. (We also estimate that this figure may be 10-15% higher because not all users sign in.) There are between 1,600 - 2,200 users during a typical month. The Center also offers free technology training and a Community Help Desk for all residents as a part of its services. In the first year of the Center (1996) the library offered 105 free training sessions on topics such as How to Buy a Computer, Windows 95, word processing and Internet. In 1998 the number more than doubled to 219 sessions. In addition to the increased use of the CTC, it's also important to note that overall library activity has increased significantly. In 1998, more than 450,000 patrons visited the library, which is a 42% increase from 1997. Circulation has increased as well, with the library setting a record in circulation in 1998. Over 780,000 items were in circulation during 1998, which represents a 25% increase from 1997.

I could share so many more stories from our project. I have received letters, cards and e-mails from students, teachers and families about this project and what it has meant to them. I have observed how teaching and learning are changing through the effective use of technology in the eight schools in this project – even on a personal level. Both of my sons (ages 12 and 13) attend North Side Middle School, which has worked hard to successfully implement the A.C.T. Now! Project. But what I hope you will take note of is that this project enjoys its success for two reasons:

First, it is part of a larger systemic effort underway in Anderson Community School Corporation. We have been working very hard over the past six years to reinvent our schools and to improve the quality of learning experiences for students. We believe that we won't significantly raise student achievement unless we significantly improve the quality of work that teachers design for students to do. Our work has been focused around ten standards that we believe are necessary if the district is to have the capacity to support and sustain (over the long haul) the reform efforts of individual schools and classrooms. These ten standards are depicted in the color handout in your packet. They are based on the work of Dr. Phil Schlechty, President and founder of the Center for Leadership in School Reform (www.clsr.org). They are outlined in his award-winning book, *Inventing Better Schools: An Action Plan for Educational Reform*. Our own superintendent, Dr. Jane Kendrick, was Dr. Schlechty's senior consultant before we were lucky enough to hire her away in April 1993. The A.C.T. Now! Project came at a time when significant reform had already taken place. It's as if the field was ready to support this highly innovative crop. A.C.T. Now! has helped to advance our performance in all ten of the capacity standards you see before you. It's easy for individual classrooms and schools to improve for short periods of time. But far too often, those improvements often fall by the wayside because the district itself doesn't have the capacity to support or sustain them over time.

Second, the project itself uses a comprehensive approach to involve students, parents, teachers and the community in its activities. Although technology is a central and important tool to help us reach our goals, it is not the end in itself. The project has demonstrated that technology can help teachers design more challenging, engaging work for students; enable teachers and families to communicate more easily and frequently with one another; increase the time available for learning through home telecommunications; increase parent/family involvement in the learning process; and increase a community's involvement in the reform of public education.

On behalf of my school corporation, my superintendent, and the students, teachers and families we serve, I'd like to thank you for this tremendous opportunity. It was a privilege to share some of the highlights of our Challenge Grant Project with you. I hope you find them useful as you consider the reauthorization of ESEA, and particularly the role of technology in school reform.

STANDARD BEARER SCHOOL DISTRICT

Anderson Community School Corporation
District Capacity Standards to Support and Sustain School and Classroom-Level Change

Standard 1: Developing Shared Understanding of the Need for Change

The members of the board of education, the superintendent, central office staff, principals, teacher leaders, leaders of parent organizations, and key community leaders (e.g., civic leaders, business leaders) have a common understanding of the nature of the problems that confront the school district and base their discussions of these problems on a common body of fact and information.

Standard 2: Developing Shared Beliefs and Vision

The school district and its community develop within the local context a compelling vision of what schools can be and how schools should be related to the community—a vision capable of earning wide support in the school district and the community and consistent with a set of well-articulated beliefs regarding the nature of schools and the schooling enterprise.

Standard 3: Developing Focus on the Student and on Product Quality

Throughout the school district there is a clear focus on the needs of students as the primary customers for the work the school provides and on the needs and expectations of those whose support is needed if the students are to be served effectively.

Standard 4: Developing Structures for Participatory Leadership

The district develops patterns of leadership and a structure of relationships such that teachers are leaders, principals are leaders of leaders, and all district-level activity is focused on providing direction and support for schools.

Standard 5:Developing Structures for Results-Oriented Decision Making

The district develops a results-oriented management system and a quality-focused decision-making process that are consistent with the beliefs that guide the system and that ensure that the measures of quality conform with the requirements of those who provide support to students and the schools.

Standard 6: Developing Structures for Continuity

The district provides for stability in leadership, structure, and culture over time, including support for innovative efforts that produce desired results.

Standard 7: Providing Ongoing Support

The district provides systems of training, incentives, and social and political support for those who are committed to the district's beliefs and vision and widens support for the pursuit of the beliefs and vision among all members of the community.

Standard 8: Fostering Innovation and Flexibility

The district develops a policy environment and a management system that foster flexibility and rapid response; that encourage innovative use of time, technology, and space; that encourage novel and improved staffing patterns; and that create forms of curriculum organization that are responsive to the needs of students.

Standard 9: Employing Technology

The district and community display a common understanding of the transformational nature of changes in information-processing technologies, and the district provides all students and adults who work in the schools the tools required for quality work.

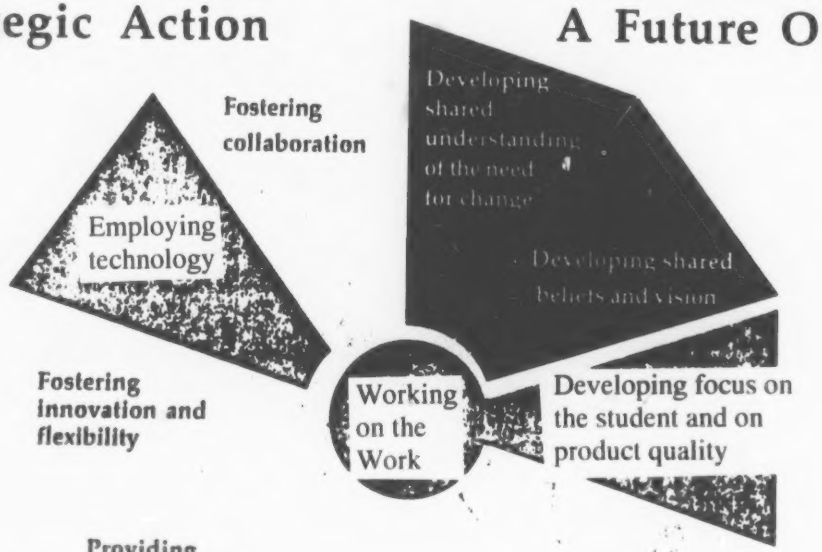
Standard 10: Fostering Collaboration

The district encourages and supports the creation of relationships within the school district, between schools and parents, and among those agencies and groups that provide service to children and youth, in order to ensure that each child has the support needed to succeed in school and in the community.

Developing District-Level Capacity

Strategic Action

A Future Orientation



Fostering collaboration

Employing technology

Fostering innovation and flexibility

Providing ongoing support

Developing structures for continuity

Developing structures for results-oriented decision making

Working on the Work

Developing shared understanding of the need for change

Developing shared beliefs and vision

Developing focus on the student and on the product quality

Direction and Focus

Center for Leadership in School Reform.
All rights reserved

Personal Information:

Terri Austin serves as the Executive Director for Organizational Development and Continuous Quality Improvement for Anderson Community School Corporation in Anderson, Indiana.

She is responsible for providing leadership in the development and implementation of initiatives in the area of organizational development, curriculum development, student assessment, teacher professional development and accountability and information technology designed to foster the capacity of the corporation to support and sustain school improvement.

Within this capacity, she serves as the Project Director for the Anderson Community Technology Now! Project, of the original nineteen Technology Innovation Challenge Grants from the U.S. Department of Education.

Mrs. Austin was a classroom teacher at the elementary and middle school levels for over twelve years. She has served in an advisory capacity to school districts, state agencies and national organizations in the area of professional development, school reform, business/education partnerships and educational technology.

Terri J. Austin
408 Davis Drive
Anderson, IN 46011
(765) 649-2911 (H)
(765) 641-2151 (W)
taustin@acsc.net

Objective: Professional position utilizing technology and education for students/teachers

Summary of qualifications

- *More than 13 years experience in educational supervision and instruction, professional development, curriculum development, community relations, partnerships, and grant writing*
- *Adept at developing and implementing school district level reform initiatives*
- *Demonstrated ability to meet challenging goals, develop school and community partnerships, and support the professional growth of school staff*

Professional experience

1998-present **Anderson Community School Corporation**
Anderson, Indiana
Executive Director of Corporate Development

1996-1998 **Anderson Community School Corporation**
Anderson, Indiana
Director, A.C.T. Now! Project and Partnerships

- Develop and coordinate professional development for staff
- Direct and supervise all activities for successful implementation of project goals
- Develop and administer project budget
- Coordinate writing and distribution of grant newsletter, federal performance reports and communications regarding the project
- Communicate with U.S. Department of Education regarding project activities, goals and timelines
- Provide leadership, training, and technical support to the project's advisory councils
- Collaborate with community and corporate partners to improve student learning

1994-Present **Anderson Community School Corporation**
Anderson, Indiana
ACS/AFT Coordinator of Community Partnerships

- Plan and implement systemic change initiatives
- Assist district and school-based staff in planning, identification, and implementation of community and corporate partnerships to improve student learning and support change
- Develop community partnerships focusing on the needs of youth
- Develop and implement marketing strategy to business and community

1993-1994 **Anderson Community School Corporation**

Anderson, Indiana
Teacher Consultant to the Superintendent

- Plan, develop and market the ACS Constitution
- Coordinate, plan and facilitate all meetings leading to successful ratification of the ACS constitution
- Coordinate and facilitate various task force teams assembled to recommend educational outcomes and standards, organizations configurations and facility utilization
- Coordinate the development and implementation of a strategic plan resulting in the attainment of on-going financial support for the professional development of ACS staff

Education

1994-Present **Butler University**
Indianapolis, Indiana
Administrator's Certification
EPPSP (Experiential Program for Preparing School Principals)

1994 **Stanford University**
Palo Alto, California
Accelerated Schools Training for Coaches

1983 **Ball State University**
Muncie, Indiana
Emotionally Handicapped Certification

1981 **Ball State University**
Muncie, Indiana
Master of Arts, Education

1977 **Ball State University**
Ball Muncie, Indiana
Bachelor of Science, Elementary Education

Professional Memberships

American Educational Research Association
National Staff Development Council
Association for Supervision and Curriculum Development

Community Volunteer Experience

St. John's Health System, Development Board Member
Chamber of Commerce Education Committee
Anderson and Madison County Leadership Academy

Anderson Community Schools Constitution

Preamble

Whereas, the people of the Anderson Community School Corporation believe that all students have the ability to learn at continuously higher levels; and

Whereas, the best way to ensure that all students learn more is to improve continuously the quality of intellectual experiences (knowledge work) in which students are engaged; and

Whereas, the people of the Anderson Community School Corporation believe that the interests of students are enhanced when the actions of all are guided by a common set of understandings regarding the purpose and mission of the schools; and

Whereas, it is the responsibility of the Anderson Board of School Trustees to ensure that all district policies are made in the best interests of students;

Now, therefore, the Anderson Board of School Trustees and the Anderson Federation of Teachers, Local 519, acting on behalf of the citizens of the community, the students of the system, and all school employees, endorse the following statements of beliefs and principles as a source of guidance and direction for all decisions and actions taken in the name of the school corporation.

The Purpose of Education

The purpose of education in the Anderson Community School Corporation is to create an environment which develops, nurtures, and reinforces the success of all people served by the corporation. Further, through the shared involvement of home, community, and school, our purpose is to prepare each student to think, reason, and participate in a diverse, global society as a lifelong self-directed learner.

Mission

The mission of the Anderson Community School Corporation is to develop and provide knowledge work that engages all students, resulting in maximum opportunities after graduation.

Commitments and Principles

- All school employees continually seek ways to collaborate with families, other child and youth serving agencies, and the community to provide the programs, services, support, and environment necessary for all students to be successful.

- The school corporation welcomes and seeks the participation and opinions of employees, parents, and community members and will continually seek better ways to listen and inform.

- The school corporation works with the community in determining and addressing its needs for lifelong learning opportunities.

- The school corporation provides a work environment in which open communication, risk-taking, and innovation are encouraged, and concerns and problems are addressed quickly.

- The school corporation is an equal opportunity employer and does not discriminate on the basis of age, race, color, religion, sex, handicap, national origin, or limited English proficiency.

- Decisions are made in a participatory manner and as close as possible to the point of implementation.

- Decisions are made consistent with the purpose, mission, and beliefs that guide the school corporation, and are based on an evaluation of results produced, utilizing a predetermined basis of method and involvement.

- The purpose, mission, and beliefs that officially guide the corporation constitute the standards against which all decisions will be evaluated, and all decision-making groups in the corporation are expected to apply these standards in judging the merit and worth of the decisions they make.

Beliefs about Students

- All students have the ability to learn at continuously higher levels.

- The interests and needs of students are the focus of all school activities.

- All students have the right to learn in a challenging, safe, caring, and nurturing climate where a spirit of cooperation and respect for others exists.

- All students are provided opportunities to make positive choices, to set goals and priorities, and to assess their own progress. They should be supported in developing the skills needed to avail themselves of these opportunities.

- All students have the right to the finest instruction and the most enriching educational experiences in and out of the classroom.

Beliefs about Staff

- All Anderson Community Schools employees treat students and each other with dignity and respect.

- All Anderson Community School Corporation employees are leaders with the responsibility of guiding and influencing students positively.

- All Anderson Community School Corporation employees provide all students with experiences to ensure they learn continuously at higher levels.

- All Anderson Community School Corporation employees demonstrate understanding and support for the purpose, mission, beliefs, and principles of the school corporation.

- All Anderson Community School Corporation employees take the lead in working with child and youth serving agencies in the community to ensure that each child has the support needed to succeed in school.

- All Anderson Community School Corporation employees are committed to continuous improvement and professional growth.

- The primary roles of the superintendent are to promote the articulation and pursuit of a compelling vision of education in the community; to encourage and support creative leadership capacity at all levels of the system;

to ensure that all personnel focus on providing high quality experiences for students; and to educate the community about education.

- Employees with corporation-wide responsibilities encourage, support, and assist employees in the development of programs and services to meet the needs of students. They should provide technical assistance to ensure that quality decisions are made.
- Building principals are empowered and expected to lead and to develop participatory leadership among school employees to meet student needs.
- Teachers design work that actively engages and challenges students and results in students developing skills, attitudes, and habits of mind that are of lasting value to themselves and to society.

Beliefs about Parents and Community

- The first and most important teachers of children are parents, guardians, and other caregivers. In this role, parents, guardians, and other care-givers are partners with teachers and other school officials to ensure that each student has the support to be successful in school.
- The obligation of the family, other care-givers, and the community at large is to foster attitudes which encourage students to behave in a responsible and respectful manner toward adults and each other.
- The obligation of the family, other caregivers, and the community at large is to ensure that students recognize success in school as one of their highest priorities.
- The school corporation, families, and all community groups and agencies that serve children and youth in the school corporation form collaborative, networking relationships that are child-centered and focused on providing the necessary support for all children and youth to succeed in school.
- Accountability for the success of all students is shared by parents, school employees, and students.
- The continuous involvement and support of parents in their children's learning and work is encouraged and expected by school employees and all adult members of the community.

Beliefs about Quality

- All policies, programs, practices, and procedures of the corporation are assessed in terms of results and the purpose, mission, and beliefs that guide the school corporation.
- The quality of the knowledge work provided to students will significantly determine the quality of student performance.
- Providing high-quality knowledge work for students is the most important single activity undertaken by Anderson Community Schools, and all decisions are made with this priority in mind.
- Quality schoolwork is goal-oriented knowledge work that engages students in using knowledge to produce significant intellectual performance, encourages students to persist until accomplishment is realized, and results in students developing desired skills, understandings, attitudes, and habits of mind.

Beliefs about Support and Innovation

- The school corporation ensures training and development opportunities for all employees.
- Risk taking and innovative thinking are encouraged, valued, and supported.
- The Board of School Trustees and the superintendent have the primary responsibility for obtaining the necessary resources to support programs within the corporation and for ensuring that programs are assessed by all stakeholders in terms of the results and the consistency of those results with the purpose, mission, and beliefs that guide the school corporation.

Beliefs about Governance

- All School Board members treat each other with dignity and respect.
- The Board of School Trustees are responsible for the adoption of policies that ensure that the corporation is accountable to the community and responsive to the needs of students and staff.
- The Board of School Trustees' top priority is to initiate and sustain a clear sense of purpose, mission, and beliefs regarding the operation of the school corporation.
- The Board of School Trustees charge the superintendent with taking the lead in creating systems in the community that ensure students the support needed to be successful in school.
- Processes are established to ensure participation in corporation-level decisions by all stakeholders.

Beliefs about Curriculum, Instruction, and Learning

- Learning is an active, life-long endeavor.
- Students are expected to produce products and solve problems that demonstrate they have command of the information, skills, and understandings they are expected to acquire and develop.
- Students are provided with learning experiences that promote responsible citizenship in a democratic society.
- Students have the opportunity to learn about their own heritage and the heritage of others.
- Students are given a clear understanding of how their chosen academic program links to post-secondary opportunities (college, jobs in the economy, and vocational school).

CONSTITUTION OF THE

Anderson Community School Corporation and Anderson Federation of Teachers

Anderson Community Technology Now! Project

A 1995 U.S. Department of Education Technology Challenge Grant Project

Anderson Community School Corporation

Anderson, Indiana

Anderson Community Technology Now! is a consortium of local and state agencies in Indiana that is combining innovative technology initiatives to raise the academic achievement of 3,140 underchallenged and at-risk students (and their families) in six elementary and two middle schools. The program is designed to accelerate the pace of educational improvement, increase the number and quality of learning opportunities for Anderson residents, and ensure greater economic opportunity within the community.

The project is addressing its goal by–

- increasing community involvement in public education;
- increasing teacher professionalism and productivity through professional development activities;
- developing new learning environments;
- strengthening the connections between home, school, and community to foster family skills and involvement in education; and
- providing opportunities for teachers and students to become self-directed and collaborative learners.

As part of previous school and systemic restructuring efforts, Anderson has undertaken several initiatives which are used in this project. Professional development support is provided by the ACS School on Wheels, a specially-trained cadre of replacement teachers and principals who can temporarily assume the roles of entire school faculties to enable educators to participate in staff development. Community involvement in education has been supported by an increased number of partnerships between the school corporation and the private sector.

The Anderson Community Technology Project has several major components:

Anderson Community Schools

A.C.T. NOW

Anderson Community Technology NOW

1) 125+ technology-rich classrooms contain 5 computers and printer stations complete with productivity, authoring and internet software. Each school has an assortment of multimedia equipment to enrich and extend curricular goals. Over 150 teachers receive a computer and printer for their take-home or in-school use together with no-cost Internet access provided through Anderson Community School Corporation.

2) The Buddy System Project at the Corporation for Educational Technology (CET) promotes the extension of the learning day beyond the classroom and into the homes of 4th-8th grade students. Eligible families receive a home-computer and printer with selected software packages. No-cost Internet and e-mail access is provided through Anderson Community Schools. In 1999, 800-plus ACS families received a computer through the project.

3) The Vision Athena Project, sponsored by the Corporation for Educational Communications (CEC) and the Children's Museum of Indianapolis, is making available two-way video for distance learning and electronic field trips, e.g. to the Indianapolis Zoo. Butler and Indiana Universities, the school system, and the Anderson Federation of Teachers are providing instructional courses and staff development in the use of educational technology.

4) A Community Technology Center with 30 computer stations, complete with Internet connections and regularly held training sessions is being dedicated at the Anderson Public Library to benefit all community members.

5) A free Community Technology Help Desk Program in support of Community Technology Center users and Buddy System Project families. Funded in part by the Urban Enterprise Association, the Help Desk provides telephone and in-person support regarding hardware and software questions, and advanced telecommunications.

6) Professional development services are being provided by the Indiana University School of Education and the Butler University College of Education. The focus is on integrating technology into the history, language arts, mathematics, and science curricula.

7) A Summer Technology Leadership Camp provides opportunities for students to research the history of the community, interview past and present civic leaders, and visit various locations important to the community's history and development. Students develop multimedia presentations in support of their research which are shared throughout the community and schools.

8) Online and in-person tutoring in literacy and mathematics is being provided by Anderson University students for elementary school students in selected schools. Technology mentoring will also be provided by university students for elementary school classrooms.

9) **Educational videotapes** developed by Indiana Public Broadcasting Stations in collaboration with Anderson teachers are supplementing 4th grade Indiana history materials.

10) **Special educational programming and teacher training** are being broadcast through the local TCI cable operator to students and their families. Programs include "Ingenious" (news, weather, etc.) and "What on Earth" (6 news stories per day). This is one of the first multimedia news programs for schools delivered by cable. Selected teachers will attend the nationally-recognized J.C. Sparkman Center for Educational Technology courtesy of the local cable company, TCI of Central Indiana.

11) **Family mathematics and science training** is delivered via two-way video by the Children's Museum of Indianapolis to school and community facilities to strengthen family learning in mathematics and science.

12) **One Stop Career Centers** designed to provide employment and career information, scholarship and financial aid opportunities, and employer addresses, contact names and phone numbers. The Career Centers are sponsored by JobSource, the local employment resource agency and are strategically placed in local high schools and public agencies for county-wide access.

13) **Computers placed in selected agencies** that provide shelter care to homeless families and children within the Anderson community. Job skill training and support for parental involvement will be included as a part of the school/agency partnership.

Over 2,000 elementary and middle school students and families in grades 4, 5, 6, 7 and 8 are the focus of the project's activities. First-year activities included computer instruction in word processing and productivity software, and integration of technology applications into 4th grade language arts and social studies classes. Emphasis is on changing teaching styles, using the Buddy Project home computer for collaborative writing and reading projects, and using telecommunications to strengthen the connection between home and school to increase family involvement in learning. Classrooms in grades 4 through 8 have computer clusters installed, with internet access and curriculum based software. Each school has a professional development fund provided by the Indiana Department of Education which can be used to purchase services from the three participating universities and other providers. Other professional development activities include the School on Wheels and the Principals Technology Leadership Training Program sponsored by the Indiana Department of Education. Rockman et al, a nationally recognized research and evaluation group in San Francisco, is conducting an evaluation of the entire program. The evaluation will determine changes in: academic achievement of disadvantaged students, family involvement in the education process, computer-based instructional time, and teacher attitudes and instructional approach.

Project Funding:

1995 Federal Technology Challenge Grant Award (U.S. Dept. of Education)	**$3.1 million**
Consortium Partners Contribution	**$2.5 million**
ACS Contribution (cash and in-kind)	**$1.3 million**
Additional Awards	**$ .4 million**

Consortium Partners:
Alternatives, Inc.
City of Anderson
Anderson Area Chamber of Commerce
Anderson Federation of Teachers
Anderson Public Library
Anderson University
Butler University College of Education
Children's Museum of Indianapolis
City of Anderson, Community Development Department
Corporation for Educational Communications (CEC)
Corporation for Educational Technology (CET)
Indiana Department of Education
Indiana Public Broadcasting Stations
Indiana University School of Education
JobSource of Madison County
TCI of Central Indiana
Urban Enterprise Association

Superintendent: Dr. Jane A. Kendrick
Project Director: Ms. Terri Austin

Institution:	Anderson Community School Corp. 30 West 11th Street Anderson, IN 46016
Telephone:	765-641-2151
Fax:	765-641-2075
e-mail:	taustin@acac.net
Homepage:	www.acac.net/actnow

May, 1999

APPENDIX G - WRITTEN TESTIMONY OF MR. BRUCE DROSTE, DIRECTOR, THE VIRTUAL HIGH SCHOOL, THE CONCORD CONSORTIUM, CONCORD, MA

Early Childhood, Youth, and Family Subcommittee
Education and Workforce Committee
U.S. House of Representatives

Testimony of Bruce Droste, Director
Virtual High School
A Technology Innovation Challenge Grant Program
U.S. Department of Education

May 11, 1999

Virtual High School

> "I want everyone to know that this year has been the best professional development year for me in 27 years of teaching. I not only feel part of a new wave of education but I feel that I have re-fallen in love with my subject - biology."
> -- Richard Clevenstine, VHS teacher, Ridley High School, Folsom PA

> "I really enjoyed my first semester class (Introduction to Stellar Astronomy) because the teacher was extremely dedicated, we did experiments and observations of the sky and I met classmates who were determined to make this class great. Astronomy has helped me enrich my general knowledge and change my perspective on the Universe."
> --VHS student

> "Virtual High School is of special interest to us because it gives our Deaf students the opportunity to participate in classes with hearing students and teachers on a fairly equal basis without the need for interpreters. In an informal survey of our VHS students at the end of the first semester, all the students responded in enthusiastic support of their VHS experience. They unanimously agreed that using the computer communication in VHS (email and discussion area) allowed them to feel comfortable interacting with the hearing students in their class."
> -- Joyce Barrett, VHS site coordinator, Model Secondary School for the Deaf, Washington DC

I. The Virtual High School Cooperative

A Technology Innovation Challenge Grant

The Virtual High School is an extraordinary project that is having a positive impact on thousands of high school students and hundreds of educators in schools across America. Like other Technology Innovation Challenge Grants, VHS is using the best of educational technologies to give students and teachers access to resources, curriculum, and training of the highest quality, and to prepare educators and learners to be skilled and confident participants in an increasingly technological world. Like other Technology Innovation Challenge Grants, VHS is bringing these benefits to more than just a select group of participants: VHS students and teachers represent a spectrum of different ages, ethnicities, backgrounds, learning abilities, and educational experiences. Similar to other Technology Innovation Challenge Grants, the effect VHS is having on education reaches far beyond the thousands of participants involved in the project. Teachers who have had access to the VHS professional development course find that they are bringing new technology skills, new teaching strategies, and a revitalized enthusiasm for teaching back into their local classrooms, thus passing the benefits of their experience on to countless additional students and colleagues. Students who have taken a VHS course find that the experience has helped them become independent learners and capable technology users, and they pass these skills on via daily interactions with peers, family members, and even teachers. High schools, communities, and entire states have found that the success of VHS has generated strong partnerships between corporate and educational entities, as well as support for additional technology and educational initiatives within their regions. VHS has become a model for similar programs across the country and around the world. In this testimonial, you will read about the simple yet powerful VHS model, and hear from VHS participants who talk about the far-reaching ways in which VHS has touched their lives.

What is VHS?

The Virtual High School (http://vhs.concord.org) is a cooperative of over 125 high schools across the U.S. that offers netcourses taught by teachers for students in the cooperative. Each school contributes teachers who, with the help of teacher mentors, instructional technology experts, university faculty, and businesses, design and offer innovative courses over the Internet. Each school in the cooperative can enroll 20 students in these netcourses for each section of a teacher's time it contributes to the pool. [This allows schools to offer a range of courses usually found only in large high schools.] Quality is maintained by requiring each virtual teacher to successfully complete a graduate-level professional development netcourse on the design and development of network-based courses. At the halfway point in its five-year grant, the VHS project is now turning from concept development to large-scale implementation.

This academic year, there are 32 schools in the project offering 34 courses to approximately 600 students. In addition, 90 new teachers from as many schools who are completing a yearlong professional development program will offer their first courses in the 1999-2000 academic year. Thus, next year, we expect over 110 courses to be offered serving 2,500 students from at least 120 schools nationwide. During that year, we will offer professional development to several hundred new teachers to reach a goal of 300 schools in the final year of the grant.

VHS Course Design

VHS courses are either one-semester or full year courses, based on an asynchronous, scheduled model structured around online discussion groups. Due to its asynchronous nature, students can access the network anytime at school or at home to read assignments, participate in discussions, and submit completed work. At the same time, courses are carefully scheduled with all the students in a course participating in the same activities and thinking about the same issues. Teachers are trained in structuring and moderating these online discussions. Without this emphasis, online courses can become conversations between individual students and the teacher thereby generating an overwhelming volume of posts. This maximizes the value of the online discussions and helps ensure that students can learn from each other and construct their own understandings. This is not only good pedagogy, but it is essential to making a manageable load for the teacher.

Most VHS courses follow a weekly rhythm that includes a major topic, assigned activities, online discussions, and student contributions. Activities have, for instance, included readings, lab experiments, music composition, critiquing a video, locating Web resources, and taking a poll. A master schedule for each course dictates these events and expectations in detail, to help ensure that all participating students are able to make meaningful contributions to the class.

Student evaluation is entirely up to the teacher who authors and delivers each course. As part of their professional development, the VHS project encourages teachers to develop "alternative" evaluation strategies that foster online contributions, collaboration, and student creativity. The project insists that the evaluation methods and criteria be clearly stated as part of each course description.

VHS Courses

With over 100 courses in the current catalog, it is difficult to grasp the range of VHS courses offered. VHS courses are open to students in grades nine through twelve and address specialized content not typically available in most high schools. One powerful motivation for teachers to participate in the project is the opportunity to offer a specialized or advanced course for which there would never be sufficient enrollment in the high school. As a result, the project attracts and encourages some unusual courses. The following sampling of course titles gives a flavor of the resulting range of courses offered. This list represents the first 30 courses in alphabetical order in the 1999-2000 catalog. All the course descriptions can be found online at <http://vhs.concord.org>.

101 Ways to Write a Short Story
A Model United Nations Simulation Using the Internet
A Shakespeare Who-Dun-It
Aeronautics and Space Travel--and Record-Breaking with Model Airplanes
American Music Heritage - Song and Society
American Popular Music
AP Statistics
Astronomy: Stars and the Cosmos
Atmospheric Interactions
Aviation History
Beyond Today
Bioethics Symposium
Biology II -- A Second Year Course
BLASTOFF - Building Lead Associate Scientists through On-line Fabulous Frontiers
Business in the 21st Century
Calculus for Business
Career Awareness for the New Millennium
Chemistry II
Computer Graphics on the Internet
Connecting Mathematics and Science through Technology
CyberReporting
Democracy in America?
Earth 2525: A Time Traveler's Guide to Planet Earth
Earth Dynamics
Eastern and Western Thought - A Comparison
Employability Skills
Environmental Ethics
Ethnobotany
Evolution and the Nature of Science
Evolutionary Genetics with a Biotechnology Twist!

VHS Costs and Sustainability

Participation in VHS does not alter the basic teaching cost structure of a school. One or more teachers are assigned to a virtual course instead of a "real" one. Because the students enrolled in the virtual courses are outside the school district, this re-assignment reduces the number of students in the district who are taught by district staff. Assuming an average class size of 20, this loss is exactly compensated by the 20 students for each section contributed who are allowed to register in VHS courses. The net result is no change in the number of sections offered and students taught.

This "zero sum" feature of the VHS has three important consequences:

Easy expansion. Each school can tailor its level of involvement to its own needs. A school that wants more students enrolled in VHS simply has to offer more sections to the cooperative. Because this decision has no cost impact on other schools, the project as a whole can easily expand to fill whatever need is generated.

Decentralization. Most virtual course projects are highly centralized, offering new courses from a distant center. This model is difficult to finance, reduces the autonomy of the recipient, and threatens school faculty. The VHS model because it is highly decentralized, avoids all these problems. One of the strengths of this national program is that it leaves control in the hands of states, schools, and local teachers and administrators.

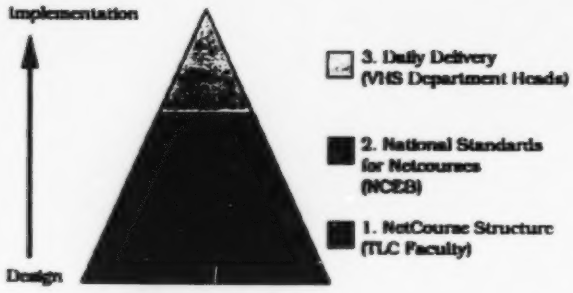
Union acceptance. Many projects offering online courses reduce the staffing requirements at the recipient school. Naturally, teacher unions are opposed to such models. The VHS, on the other hand, has strong union support because it does not alter employment levels and does offer teachers professional development and new employment options.

Participating in the VHS, however, does entail costs. Of course, computers and network access are required. Surprisingly, this is not a major problem for most high schools, since student access to just a few computers can be spread out over time. The major costs to schools are the time required for online professional development and the local site coordinator functions. In addition, the project generates central costs for project coordination, student registration, technical support, server support, and evaluation. One of the major issues being addressed by the project is what these costs are, how they can be minimized, and whether they can be sustained.

It is reasonable to assume that VHS site management will become routine, that the technology will improve, and teacher professional development will require less time. When this happens, the VHS model will be easily and economically duplicated. Rather than simply growing the original VHS, we anticipate that there will be numerous virtual high school cooperatives. Any large district could establish one. Some might be organized around content or language. It is conceivable that highly specialized virtual high schools would be created. If all the virtual high schools adhere to the same quality standards, there can be cross-enrollments between them, increasing the range of courses and student diversity. Small high schools could become more attractive since they are no longer restricted in the courses they offer. It is even possible that the good pedagogy demanded by world-class virtual courses will spread throughout high schools.

"How are we doing?" – VHS Evaluation Efforts

More than two and a half years, three and a half semesters, and dozens of courses into the VHS project, VHS participants have gained unparalleled insight into the many factors that make up a *quality* high school netcourse. In this last year, the project has focussed on the quality of course design and delivery, with the appointment of a national standards board that has established quality standards for netcourses. This board, the NetCourse Evaluation Board, or NCEB, has synthesized the enormous expertise of university-level distance learning experts, state department of education (DoE) curriculum experts, as well as VHS teachers, trainers, administrators, and students, to create a set of netcourse standards by which all VHS courses will be reviewed. In addition, the project will appoint independent "department chairs" (content experts) who will periodically check on the progress of 5-10 netcourses for which they are responsible. The VHS netcourse standards will be adopted not only by VHS, but also by other groups who wish to develop and evaluate high-quality netcourses based on a proven national model.


Implementation
Design
3. Daily Delivery (VHS Department Heads)
2. National Standards for Netcourses (NCEB)
1. NetCourse Structure (TLC Faculty)

The three tiers of the VHS evaluation process are complementary yet distinct - they focus on three separate facets of NetCourse design and delivery.

SRI – Project Evaluator

The VHS project has retained SRI International as an independent evaluator. Their research has found a high degree of satisfaction among students, teachers, and school administrators. They verified that students liked VHS because it allowed them to take courses that were of interest to them but not offered at their high school. They also found that teachers liked it because they could teach courses they had always wanted to offer but couldn't because of low enrollments. SRI's research revealed a high degree of acceptance from school administrators who appreciated VHS because it offered advanced courses and gave them increased flexibility. All the principals and superintendents responded favorably on overall satisfaction with the program. The full SRI report is published on the VHS Web site <http://vhs.concord.org>.

II. Virtual High School Participants

The best way to begin to understand the enormous impact that VHS is having on American education is to let the VHS participants – students, teachers, site coordinators, and high school administrators – speak for themselves. VHS and all the Challenge Grant projects are designed to serve these students and educators, and they are the people who make these projects truly powerful. In the testimonies that follow, VHS participants explain the impact that the project has had on their lives. They are from different backgrounds and all walks of life. They range from 9th graders to teachers with 30 years' experience. They come from at least eighteen different states and 120 high schools across the country. They live in large urban cities and rural farming communities. What these participants' testimonies have in common is that they point to positive outcomes far greater than the designers of the project ever could have imagined. VHS students talk about the confidence they have gained not only in course subject matter, but also in taking responsibility for their own learning, and using technology and the Internet for real-world applications. Students and teachers talk about the empowerment that comes from gaining access to technology resources, hundreds of courses, and a national community of peers they'd otherwise never have access to.

Teachers talk about the shift to more encompassing teaching strategies that comes from having students of varying ages, backgrounds, and learning abilities together in one class, and about the way perspectives broaden for students who have the opportunity to learn with kids from different parts of the country. All of these lessons and skills will be invaluable to teachers and students as they move into the increasingly more technological and connected world of the 21st century. The following testimonies are grouped into several broad categories that describe the benefits of VHS and the Technology Innovation Challenge Grant program as a whole.

VHS expands horizons and builds communities of learners

"What I find most remarkable about my student's experiences is that they don't feel that they are involved in a distance learning course. They feel that they are members of a virtual high school. The difference is most important. They became part of a national community of learners and explorers. They are excited about their education. The skills and lessons they gain from the VHS program spill over into their regular high school classes. They share their virtual education with fellow students and are able to add unique perspective to regular classroom discussions. They are truly becoming self-disciplined, nationally orientated students. They have moved far beyond the boundaries of our local high school. Ironically, a number of our students have found their virtual courses to be more "real world" than their regular classes. Often the VHS courses are more self-directed, production oriented, less memory based educational experiences. They will take these lessons to college and to life. Any program that adds over one hundred courses to a high school's curriculum, enhances the students' technological skills and links them to students and teachers throughout the United States would have to be considered a great achievement. The fact that Virtual High School has been able to do this while giving the program a very personal community based feel is remarkable. It is an honor to be part of the Virtual High School experience."
-- Mark McGrath, VHS site coordinator, Collingswood High School, Collingswood NJ

"..about asynchronous discussion- there are a lot of people who don't really *like* that idea. I emphatically disagree...I love it! I think it works better than face to face discussion, actually. And not necessarily for the reasons that everyone usually says "it gives people time to think about their answers" and "it helps shy students express themselves more easily", etc (although those are advantages....just not the ones that directly apply to ME :P) I like it because everything that everyone wants to say...can get said. It's not like a 'real' conversation where one person says something, and someone else responds, and then someone picks up on a tangent to THAT and you can't really go back the first thread of the conversation....or you could, but you'd have to abandon that new tangent. Either way, you lose out on something. With asynchronous discussion, you can have both threads (or more) going at the same time, and they can sprout other branches, and so the discussions end up being in-depth and covering a lot more ground than usual. And being able to finish a thought without being interrupted (otherwise known as rambling :P) is nice- and of course, everyone can still reply to whatever was in there in the middle that they DID want to respond to. And then there's the fact that we have a complete record of the conversation on hand...which can be useful. I really do think that this 'discussion factor' is one of the BEST things about VHS, and one of the things that makes it successful."
-- VHS student, *WebQuest: A Literary Odyssey*"

I think that VHS is a wonderful experience, I learned not only about the subject - Russia and Soviet Union, but I also learned about myself a lot. I learned how to develop more discipline in my ability to study, I learned more about other teenagers from other vhs classes through vhs students' discussion etc. Surprisingly, I even like my vhs teacher very much! She taught me a lot. Ms Terry Haugen is really a wonderful teacher. It is not easy to do all homework on time but it is great working with her."
-- VHS student, *Russian, Soviet, and Post-Soviet Studies*

"I entered VHS because I thought it might provide a higher level of difficulty and challenge me in something that is not offered at my school. I soon found that my class was not hard, it simply required you to think. Most of the things we did in my class was analyze and write essays, which I learned a lot from. But when a person enters this class they need to be aware that they will have a lot to talk about and will have to be prepared to talk a lot and share their thoughts. On a lighter subject, my teacher, Mr. Stefanisko, was so neat! He provided his own insight on some of the subjects and also constructive criticism on some of ours. He helped to make us really think about what we were talking about, not just throw something down. I learned tons from just the discussion area and the books for the course were

absolutely perfect! I loved each and every one of them. Thank-you for the most enjoyable class I have ever taken!"
-- VHS student, *Exploring America through its Writers*

"VHS is not about using technology for the sake of using technology. VHS is about offering students unique and alternative learning experiences that not only supplement, but transcend their normal high school experience. It is far beyond kids learning content over the internet; it is about people-connections and developing a sense that wherever you are in this expansive country we are in this life together. VHS is a place where kids from all over the country, from all sorts of backgrounds come together and share in learning. Imagine in the future, all high schools being interconnected, and kids from everywhere having the opportunity to experience on a daily basis their peers from communities across the nation. In a nation so vast, that changes so rapidly, whose population is so diverse, we must provide the opportunity to understand each other no matter where we come from, no matter what our cultural heritage. I see Virtual High School as the vehicle for such an opportunity and an incredibly positive use of internet technology."
-- John Dye, VHS teacher, *History and the Silver Screen,* Dublin Scioto High School, Dublin OH

"I am very pleased with my course and the experience I have received from it. It has helped me to become more independent and more self-disciplined when it comes to my school work. I enjoyed getting to know my classmates as well as my instructor. I am registered for another class during the spring semester and I can not wait to get started."
-- VHS student, *A Model United Nations Simulation Using the Internet*

"As with any new technology, I believe that VHS has much potential to be a truly valuable learning tool. To me the advantageous aspects include student flexibility, the necessity of personal responsibility, and broadened educational horizons. I think that each is an asset that is both valuable and attractive to potential students. They truly appreciate being given the responsibility for their own education and the trust associated with that responsibility. The breadth of VHS courses speaks for itself."
-- VHS student, *The Bioethics Symposium*

"This was a wonderfully fun course to take as an elective. I found that it seemed to help me not only learn about poetry, but about people from other parts of the country who have grown up in a background much different from my own."
-- VHS student, *Poetics and Poetry for Publication*

"What? A class over the internet? That's cool!" That was the first thing I thought of when I heard about the course. Her (Marsha West's) methods of teaching swept me away. I was overwhelmed by the substantial amount of curriculum, but it was the most helpful work I have ever done in an English class. In the beginning, there were many problems with connections and technical difficulties, but the hardworking administrators overcame these hard times with much encouragement to the student....they were soon solved. My Site Coordinator was enthusiastic about the course, so this made me want to participate. The teachers were some of the best I ever encountered."
-- Sarah, VHS student, John F. Kennedy High School, Fremont CA

"VHS was really hard in the beginning, but once I got into the swing of things, I really enjoyed myself. I learned a lot about debating subjects that didn't stand on solid ground and those things that people all had opinions about but there wasn't much physical evidence for any of the opinions being the right or wrong one. Besides course topics I definitely learned patience. As an added bonus, I am much more technologically literate. There is no way that I could have done that any other way than by taking this course and that will definitely help me out when I go to college. Thank you, VHS!"
-- VHS student, *The Bioethics Symposium*

"The English AP course I took was one of the most valuable courses I have ever encountered. I believe the success of this course and many other courses depends mainly on the teacher. I enjoyed the course very much. It was a great learning experience. The people I met and the work I did was different from the regular coursework I had been used to. Mrs. West was a dedicated teacher, that's probably why I learned so much. The content of the course was educating and helpful in many ways. I would definitely recommend this course to anyone who is interested in taking the English AP."
-- VHS student, *AP English: A Web-Based College Level Course in Literature & Composition*

"I have loved being able to have intellectual conversations without getting the Blank Stare. I have also loved the personal conversations that went on…Every day I venture to the school library with two other people and we plop ourselves down in front of these marvels of technology for an hour and a half. Each of us sits in their own silence, immersed in their own activities. Talk occurs, but they can hardly be expected to understand my stress-filled ranting about an essay on Moby Dick that just HAS to be done…I am alone. Or so I thought. I entered VHS to find a group of very different people who accepted me with open arms. Names on a screen, maybe, but also people that live FAR away…Together we have traversed

great works of literature, and as I watched the water, I could almost see the Pequod chasing after the elusive Moby Dick, tossed by the waves…It's true, each one of us is different, and each one of us brings to the class different views of the world. Moby Dick is a perfect metaphor for our class...every new opinion I encountered helped to either reaffirm or question my beliefs…I would like to thank all of you for making this an experience which I will always remember…You all have opened me up to questions I never recognized in the past, and might never have."
-- Kristi, VHS student, *WebQuest: A Literary Odyssey*

"I think one of the things that helps [make a VHS course work] is that it is not _solely_ done on the internet. We still have real live solid books, and the time spent actually reading and not burning out your retinas on a computer screen is refreshing. And we all read- and then we all have that BASE for when we do get together online and discussion and comment. And what the internet does best- bring people together, no matter how far away they are physically. We take the best of what the Internet offers and use THAT, and don't chuck everything that's low-tech just because its low-tech- the only reason to stop using something is if there is something else *better* out there. It's not a matter of "take classes on the Net in order to take classes on the Net," it's "take classes on the Net because it can do this, this, and this better than normal." In fact, if I *do* get to take this class again, one of the things I'm looking forward to is the discussion with my friends who will also be taking it- because the discussions really DO work better in this medium, even if we are sitting in the same room."
-- VHS student, Allen High School, Allen TX

VHS is enabling teachers and students to become confident technology users

"I think VHS is a great opportunity to provide a wide variety of nontraditional curriculum and to integrate the Internet into that curriculum. I really liked my course. Before taking VHS, I felt very uncomfortable with the Internet and I knew very little about it. Although I am no expert, I now feel like I understand it well enough to do what I need to do. I thought my course gave me excellent insight into how the Internet is having an impact on business. I think this is very valuable information because I feel like I am a step ahead of my classmates with this knowledge."
-- VHS Student, *Business in the 21st Century*

"My main attraction to the VHS course was its ability to provide me with a class not offered by my high school. As I began the course, however, I realized that I was learning about much more than just Eastern/Western Thought or Music Appreciation - I gained an immense knowledge of computers and communicating

via internet. My VHS teachers were most helpful in introducing me to the VHS system and encouraging interactions among other students. Before this year, I had never taken keyboarding or any computer classes, and I had never been on the internet; now I can honestly say that I know a lot about working with computers on the internet. Also, I felt that the format of VHS fits my learning style - it allows me to work at my own pace and communicate when necessary. I also love the informal nature of VHS courses – students can read and freely comment on others' work."
-- VHS Student, *Eastern and Western Thought - A Comparison* and *Music Appreciation and Composition*

"When I think about VHS and its impact, the first thing is new technology. I have been teaching 25 years and when I went through schools only NASA and the IRS had computers. I did not have the background, knowledge or experience in computers. Today I feel very comfortable using both Macs & PC and this is because of VHS. My field is art and I will be ever in debt to VHS for bringing me up to date with the use of computers in the art world. This new computer knowledge has made me a better teacher. I feel that I will better prepare my students for college and technical school. Artfully yours,"
-- Janice Cooper, VHS teacher, *Computer Graphics on the Internet*, Thomasville High School, Thomasville, NC

"I'd say that so far the best thing about VHS that has helped me and my students at Lowell High School is the practical experience that I have gained using the Internet as a research tool. I think many people (students, parents, and teachers) think that if you have a project, the internet will in some magical way do it all for you while you sit back and watch. The other misconception is that just because information is on the Internet, it is valid. I'm really learning how to use the Internet and have been able to pass this on to my students and fellow teachers."
-- Jim DeProfio, VHS teacher, *Perspectives in Health*, Lowell High School, Lowell MA

"…As domestic and international culture becomes increasingly more global the ability of the academic and economic communities in the United States to communicate more effectively with their global partners becomes a matter of not only economic importance, but also of national security. We need to be as literate as possible in this area so that we can maintain our lead in this area. Long distance learning will supply this nation with literate members of our electronic society. The blatant commercialization of the internet has overshadowed the real potential of the internet and that is the free flowing of academic ideas and the ability to communicate with others who have mutual interests, knowledge, and aspirations. VHS fills this void."

-- David Jost, VHS teacher, *Music Appreciation and Composition*, Westborough High School, Westborough MA

"VHS has been a very exciting adventure for my five students who are participating this spring. It is a very interesting phenomenon when students come into the class before the bell rings, log on and get right to work. As site coordinator, I have watched them grow as learners. They have learned not only a great deal about Hispanic culture but also a great deal about using the internet as a research tool. They have become responsible for their own learning--independent learners who can take the technological tools (that will only become more prevalent in the 21st century) and utilize them to learn."
-- Vicky Ferguson, VHS site coordinator, Milton High School, Alpharetta GA

"As a teacher I have learned so much technologically and how to make directions clear in the written form. I think I have everything explained, but the students will let you know if you don't. Technologically I don't even know where to start: learning Lotus Notes, learning the internet surfing, learning to import, retrieve files, export materials from my course, just all the ends and outs has helped me develop as a teacher."
-- Luron Singer, VHS teacher, *Introduction to Botany*, Center High School, Center CO

"My parents and I were both hesitant about the whole idea of Virtual High School. You see, I am the kind of person who needs a lot of one on one to gain understanding and I thrive on class discussions. I was worried I wouldn't be fulfilled academically by taking the VHS class. If it weren't for Mrs. West being our teacher and site coordinator I don't think I could have made it. Another worry was that I wouldn't be able to function competently with the computers-I am no genius when it comes to technology. At the beginning of the year I thought, "Oh, I'll get used to this in no time." It is now the end of the year and I am still trying to get used to VHS. However, over the year I gained confidence and understanding of how those relentless machines work."
-- Jenny, VHS student, *WebQuest: A Literary Odyssey*

VHS is serving the needs of a diverse student population

"This is the first year for Model Secondary School for the Deaf to participate in Virtual High School, and we are very pleased with the results of our involvement. Ten of our students have enrolled in classes each semester this year. Their success and enthusiasm, along with the growth we have seen in their independent study skills and in their self-confidence has convinced us that this is a very valuable

program which we hope will continue in the future. We are a small high school with 206 deaf/hard of hearing students. VHS gives students who are ready for the distance learning challenge the opportunity to take a variety of courses that would not otherwise be available in a small school. In classes like Web Quest - Honors English, Poetry for Publication, Screenwriting, U.S. Government Issues, etc. MSSD students have explored new subject matter and shared ideas and experiences with students and teachers from across the United States. VHS is of special interest to us because it gives our Deaf students the opportunity to participate in classes with hearing students and teachers on a fairly equal basis without the need for interpreters. In an informal survey of our VHS students at the end of the first semester, all the students responded in enthusiastic support of their VHS experience. They unanimously agreed that using the computer communication in VHS (email and discussion area) allowed them to feel comfortable interacting with the hearing students in their class.
Some student comments that we received on the survey were:
-- "I felt I was communicating through a TTY (teletypewriter)."
-- "I love working independently and was very motivated because I had to depend on myself."
-- "It is a great experience."
-- "It is a good chance to enrich the learning experience and interact with other teachers and curriculums."
-- "I loved it."
-- "I greatly recommend that the VHS continues in the near future. It is a once in a high school lifetime opportunity."

This does not mean that Internet distance learning is always easy for our students, nor do I think that it takes the place of teachers. What we are discovering is that VHS gives the teacher or Site Coordinator monitoring students the opportunity to step back and become an advisor or mentor as they focus on helping the students develop responsibility, time management, communication, and independent learning skills which are so important in today's work world. Many of the students have struggled to cope with the new "Internet way" of taking classes and with the responsibilities involved with distance learning, but their sense of pride and accomplishment in the end makes it all worth while and a very meaningful part of their high school education."
-- Joyce Barrett, VHS site coordinator, Model Secondary School for the Deaf, Washington, DC

"Next year we are going to have a sophomore enrolled that has severe hearing problems, but he is a dedicated student and the nice thing about VHS is that no one

will know he's any different, and VHS is very visual. I am really excited to see how it works for him."
-- Luron Singer, VHS teacher, *Introduction to Botany*, Center High School, Center CO

"One of our LHS students enrolled in a VHS course would not have graduated this spring without VHS. She had family problems, moved out of the house, worked full time, and had a difficult schedule. VHS was the only class she could fit into this chaos, due to the flexibility of LS. Otherwise, she would have had to attend summer school (at a personal financial cost), and would not have graduated with her class."
-- Curt Stedron, VHS teacher, *Screenwriting Fundamentals*, Littleton High School, Littleton CO

"It would have been interesting and great if all of my classes were taken as a VHS course. I probably would have done better since I learn better when it is a good time for me to be in that class, and not for the school faculty. Being able to work on my assignments later in the day and sometimes late at night, I absorbed the information better. Of course, the "traditional" classroom is important, but I found that VHS is more interesting."
-- VHS student

"One thing of importance is that VHS has given us 3 additional seats for students who are in our county's psychoeducational center. This will enable these students to have interaction with non-disabled peers that may not be possible otherwise. We have some students who have such severe emotional or behavioral disabilities that they can not be safely integrated into a regular high school environment. Through this pilot we will be able to give these students the opportunity to participate and learn from their non-disabled peers. This can truly be a powerful educational experience. This will also enable these students to take higher level academic courses that are not available because of the small size of the school. There are approximately 400 such students across the state of Georgia…VHS can truly make a positive impact on these students' lives."
-- Alison Coker, VHS teacher, *Career Awareness for the New Millennium*, Sprayberry High School, Marietta GA

"Two years ago I was a basic illiterate in long distance asynchronous learning. ("What's email?"). Many of these students and site coordinators were as well. This project has challenged my intellectual ability and my teaching ability like no other in my 21 years as a public school teacher. The lessons I have learned about myself as a teacher could go on for pages, but let me be brief. I have learned that the most

important thing that we can teach our students is not what to learn, but how to learn. Each student I have encountered in VHS is from a different school, background, academic level, and musical background. The challenge has been in bringing out the inner student in each participant. They all have the ability to learn, but the desire to learn needs to be fostered. I have reached a point now where I have obtained knowledge of learning styles, complex problem solving in both computer technology, and educational pedagogy. This is all a direct result of my participation in the VHS project."
-- David Jost, VHS teacher, *Music Appreciation and Composition*, Westborough High School, Westborough MA

"As an English teacher for VHS, I immediately noticed how open students are in their writing. I think they feel more comfortable sharing their thoughts on-line rather than in the traditional classroom. In light of all the focus lately on different high school cliques and some feeling like outsiders, VHS offers students a chance to be a part of something new. Students are not put into a category; I know them through their work. The result is a chance to really share what they think without the fear of being judged."
-- Peter Stefanisko, VHS teacher, *Exploring America through its Writers*, Windsor High School, Windsor CA

"Here's a story about Carlos from Forks, WA (Marsha West's school). He was a "special" kid who had no computer skills and who had difficulties in learning. He took my class and sweated up a storm, working REALLY hard and growing by leaps and bounds. (All this is from Marsha - she might even write you the same story.) Anyway, he didn't finish all the assignments, and his work was below average because of his limited abilities, but because of his work ethic and the amount he learned about Hispanic cultures, not to mention computers, etc., he passed my class. At the end of the school year, the students at Forks had to fill out surveys. One of the questions was "What was your favorite thing this year at Forks?" Carlos' answer: "Cynthia Costilla". Brings tears to my eyes every time I tell it. The kid had a place to BE, where he fit in with the group and felt success as he learned about technology and Hispanic cultures. "
-- Cynthia Costilla, VHS teacher, *Explorando culturas hispanas a través del Internet*, Allen High School, Allen TX

VHS offers unparalleled professional development opportunities for teachers

"As a future VHS teacher, I share the excitement of these students. The TLC training course has given me a shot of adrenaline at a time when I had begun to look ahead favorably toward retirement. Imagine that; 44 and ready to call it quits.

No more. Whatever happens next year when I teach my Shakespeare course, I have already received full value for my year-long TLC course. Because distance learning poses such a unique teaching experience, strategies must be modified to maintain the interest of the students and the integrity of the course. TLC has taught me to *rethink* my teaching strategies, and my current students are reaping the benefits. Incredible. The computer and TLC has given me a new perspective on Shakespeare. Thank you for providing such a wonderful learning experience for me, and such an exciting opportunity for our students. I am a firm supporter of VHS."
-- Wanda M. Stuckey, VHS teacher, *A Shakespeare Who-Dun-It*, Griffin High School, Griffin GA

"While I am only a teacher in training for the VHS and presently writing my course for next year, I want everyone to know that this year has been the best professional development year for me in 27 years of teaching. I not only feel part of a new wave of education but I feel that I have re-fallen in love with my subject - biology. By developing my course, I have had the opportunity to introspectively analyze what I am teaching, why I teach in the way I do, and how I can change and improve my communications with students. I am deeply grateful for the opportunity afforded me by the VHS at this point in my career."
-- Rich Clevenstine, Ed.D., VHS teacher, *Biology II - A Second Year Course*, Ridley High School, Folsom PA

"From a teacher's standpoint, it has given me a new adventure and definitely a new challenge. After 26 years of teaching, it has really given me the boost I needed in my teaching career. Sometimes we as teachers become complacent and do the same thing year after year. This type of course makes teaching more exciting and more meaningful. It has really given me more ideas to use in my present classes."
-- Joann Collins, VHS teacher, *Exploring the Wonderful World of Multimedia*, Lincoln County High School, Lincolnton GA

"On a personal note, the opportunity to teach a VHS course has motivated me as a teacher. It was good to get back into course design and helped me to keep current in my field. The TLC course helped me to evaluate my regular courses, as well, looking for places to improve their quality."
-- Terri Day, VHS teacher and site coordinator, *Introduction to Microbiology*, Center High School, Center CO

"Legislators often lament the quality of teachers. If they could only contact any of the TLC participants!!! They are student oriented, creative and enthusiastic. They are not getting paid for putting in hours of their own time, but are creating courses

for the love of the subject matter and they realize the phenomenal potential of VHS. This is Canfield High School's (Ohio) first involvement with VHS. We are in the process of creating a course. We have 20 students registered for a variety of classes next year. The technical and course help from concord [the staff at The Concord Consortium] in creating our course has been wonderful. Providing students with the opportunity to participate in a program such as VHS is nothing less than vital in this age of technology."
-- Sieglinde Warren, VHS teacher, *World Literature on Film as it Reflects the Continental Experience*, Canfield High School, Canfield OH

"I am a VHS teacher in training and I feel like this has given me a new perspective in my teaching. One day when I was in the lab working on my course, I asked one of my former students who was in the lab for another language class to read through one of my lessons online and tell me if he understood the instructions. He read through that week's sections and ASKED if he could enter his comments as the lesson requested! It is not often that a student requests if he could please do the work, much less one that is not even in your class."
-- Cindy Price, VHS teacher, *Páginas en la red en español*, Wheeler High School, Marietta GA

"Having worked this year developing my course, I have grown in more ways than I can explain. It's not just that I have had to learn a whole new virtual world (including LOTUS NOTES); it's that being involved in long-distance learning has heightened my awareness of all aspects of my face-to-face teaching. For example, I work harder to clarify directions. I try to find new ways to connect with students and families. I am more inclined to encourage my students to use technology to solve problems and find information simply because I am more and more comfortable and confident with it myself. I shouldn't say "simply;" there's very little about this kind of learning that is simple--except for the fact that it is so exciting and powerful. And people who say it is impersonal haven't experienced what I have....Being a part of a virtual community is as dynamic--though not visually--as is being a part of any group of people who share common goals /interests...Simply know that I've loved being a part of VHS."
-- Deborah Baker, VHS teacher, *Narrating Family Histories*, Tiffin Columbian High School, Tiffin OH

"This has been an incredible experience for me. I am only in the developing stages of the VHS program and will begin my online class in Personal Finance in September of 1999. Teaching at a small rural high school - around 500 - nine through twelve - does not allow for the opportunities that VHS will afford.

I appreciate the opportunity and experience. My teaching career started after being in the corporate environment for over 15 years - and this has been an incredible adventure from the beginning. Thanks VHS for the challenge!"
-- Debbie Routt, VHS teacher, *Personal Finance*, Armuchee High School, Rome GA

VHS greatly increases access to courses and educational resources

"As the Director of Technology at a small rural school district I have found VHS invaluable to our program. With the selection of courses available to us, we can now compete with other local schools both public and private. With only 305 students in both the Jr. and Sr. High, North Brookfield notices every time a student leaves. When asked why they were leaving the response usually includes lack of course selection. With VHS this argument does not have merit. Recently there have been rumblings about actually closing the school and sending our students to a larger district. As an educator I believe in the small school model, where students are not a number. Our students would be lost among many in a large district. VHS has helped keep our doors open by offering high caliber classes and a teaching staff that is dedicated to educating our young people. We ask that you support VHS as much as possible so that more students have the opportunities that we have had."
-- Trevor Bruso, VHS site coordinator, North Brookfield Jr/Sr High School, North Brookfield, MA

"Kalida High School is a small school of only 360 students in grades 7-12 located in the small farming community of Kalida, Ohio. There are many advantages in having a small school such as the close relationships that develop between students and staff and the personal nature of much that we do. The biggest drawback is the lack of course offerings that we have for our students in house. Becoming a part of VHS is one of the greatest things that has happened to the students of Kalida High School in recent years. Next year we will have students taking a wide range of courses in a variety of disciplines that was never available before. We will have a teacher teaching a course (Marketing With Probability) that we could not offer here because of a lack of enrollment. Our course offerings have more than doubled as a result of the VHS offerings. Programs such as VHS and other forms of distance learning offer students from schools of all sizes educational opportunities that they normally would not get. I know that the members of Congress are interested that there is a worthy purpose to their funding. They can rest assured that increasing the educational options to students through programs like VHS is an investment that will pay dividends for many years to come. I thank everyone responsible for offering our students this unique educational opportunity."

-- Dale J. Nienberg, Principal, VHS site coordinator, Kalida High School, Kalida, OH

"The music class that I teach has provided the opportunity for students around the country to learn about music in ways that is not possible for many in their own schools due to lack of programs, funding, or scheduling. Amy, from Allen High School in TX, wrote that she was able to understand the instructions of her conductor in the All State Band due to the materials and experiences she had had in my course. David, from Shrewsbury, MA wrote that he was going on into a career in sound engineering and recording and that the course helped him in his own musical development which will be necessary for him to do well in college. An education in the arts provides an opportunity to develop and foster the soul, to share thoughts and emotions with others, and to gain an insight into other artists and cultures. The arts enable us to experience our own feelings and emotions more so than in any other academic discipline. Without the arts the human experience would be a drab, colorless, unemotional experience. It is through the arts that we become the human part of humanity as the face of humanity is seen through our legacy that has been left behind in the visual, musical, and language arts. The world of the artist is changing as rapidly as the rest of the world. The artist of tomorrow needs to be aware of the technology and climate in which they are creating and performing and be able to address to this audience. As educators, our role is to prepare our students to the fullest extent possible and teach them to realize their role and importance in our society and of society's impact on them. VHS provided this needed arts experience to the students involved in the project. I urge continuation of the Technology Grant so that we can reach our goals for our students."
-- David Jost, VHS teacher, *Music Appreciation and Composition*, Westborough High School, Westborough MA

"I can truly say that VHS will make a positive impact on our system. We are a very small school system with limited resources, and we only have about 425 students in grades 9-12. Our school system will never be able to offer the kind of courses that VHS offers. This opens the door for our students great opportunities to take courses they are interested in but would never have had the opportunity to take. One example is a student who wants to be an actress. She is looking forward to taking the course, "Screen Writing Fundamentals." Also, the group of students that we have signed up this year thinks it is so exciting to be able to take a course from another instructor in another state. It will definitely give them some new experiences. One other thing I might mention is that we have a shortage of teachers to teach various courses causing some of our classes to be overcrowded. VHS helps to reduce class loads."

-- Joann Collins, VHS teacher, *Exploring the Wonderful World of Multimedia*, Lincoln County High School, Lincolnton GA

"I can't imagine the *need* to justify the Technology Innovation Challenge Grant program, or more specifically, programs such as Virtual High School. Surely the necessity of such funding is evident: Our *Brave New World* has arrived, and we can either accept our destiny or forfeit our place to those who can meet the challenge. This fall's school term will mark my school's official entry into the future of education. Twenty of our students are enrolled in a range of courses through VHS from technical to academic, from AP to open to all. As large a high school as we are, almost 3000 students, we cannot offer the variety and expertise of course selection which VHS can. Our students are very excited; our only problem has been in selection of the core VHS students. After all, we have *only* twenty slots."
-- Wanda M. Stuckey, VHS teacher, *A Shakespeare Who-Dun-It*, Griffin High School, Griffin GA

"I'm glad that C++ is offered because it is a subject that interests me and that I would not be able to take under the regular high school curriculum."
-- VHS student, *Introduction to Computer Programming*

"I teach at a rural high school. VHS makes available so many electives that our school could never offer on their own. Unfortunately, some students need to work to survive. VHS can give those students the flexibility that they need to survive and complete their education. It could be a great influence in reducing the dropout rate. There are also several upper level courses offered that challenge the bright students. I am, myself, currently enrolled in graduate school and the courses that I have been taking are on the Internet or offered through our distance learning center at the high school. Today's technology is making it possible for American's everywhere to have easy access to education. American's today lead busy lives and the flexibility of scheduling is making education possible in many areas where it was difficult or impossible yesterday. It is crucial for the Federal Government to continue to stand behind the Education of America and aid educational endeavors like this one (VHS) with all of the financial and moral support possible!"
-- David Perry, VHS teacher, *World Area Studies/Current Events*, Stamford Jr/Sr High School, Stamford TX

"We require all of our senior learners to take one course related to history for next year. Since there exists a plethora of [VHS] courses to choose from, the students have a choice on the direction they want to take in studying history. This

opportunity has allowed one of our girls to graduate from High School [this past] December. She is now working and preparing to leave for college next year.
-- Robert J. Erger II, VHS teacher, BLASTOFF -- Building Lead Associate Scientists Through On-line Fabulous Frontiers
ACT Academy, McKinney TX

"A student in Screenwriting (1st semester), told me that the course was the best writing course he'd ever taken. Now, I offer this not to hype my course, but to point out that without VHS, there would be NO screenwriting class anywhere in a U.S. high school. This kid would have ZERO chance to take such an esoteric (but clearly valuable) course!"
-- Curt Stedron, VHS teacher, *Screenwriting Fundamentals*, Littleton High School, Littleton CO

"I think the two biggest contributions [of VHS] for our school/area [is that it] 1. provides a wide range of courses and increases the number of course offerings and 2. provides technology rich courses as an additional method of instruction."
-- Nancy Marsh, VHS teacher, *Natural History of the Southeast: A Case Study of Georgia*, Portal High School, Portal GA

"The biggest impact on our school is being able to offer dozens of classes to our students that wouldn't be possible otherwise. We are a small rural school (740 students K-12) and staff time is limited to required courses. We have little opportunity to teach elective courses in our subject areas. This gives our students the chance to take classes that might be offered at bigger schools, or even junior colleges and higher level colleges, that they wouldn't have access to due to distance, time, etc."
-- Terri Day, VHS teacher and site coordinator, *Introduction to Microbiology*, Center High School, Center CO

"There are a LOT of advantages to this type of learning - especially for 'independent' learners like me. One is the 'flexibility' in scheduling…Of course, I DO have a computer at home, so that helps immensely. I really do prefer to do my work at 1 or 2 in the morning. And with VHS, I can, if I choose to. One of the BEST advantages of this type of distance learning is the variety of classes available. It's hard to generate enough interest in a single school for most classes....for a lot of the ones that are being offered next year, I can see maybe two or three people in the entire school wanting to sign up for them. So there would be no way to offer it HERE. But once you get a whole bunch of schools involved...all with their own two or three students...BAM! you have a class. A non-generic class, which is the only kind we really get in high-school. (have you noticed that class-

titles in high school are more like FIELDS than individual classes? General, general, general....) And in THAT way, VHS is an absolute godsend. Because I can actually take classes in areas that _interest_ me *boggle* And I know it's going to keep me sane next year....since I've pretty much run out of stuff to take HERE. I'm taking 4 VHS classes next year."
-- Jenn, VHS student, Allen High School, Allen TX

"…Consider some remarks my students made today…a boy who's taken Screenwriting and is now in Short Story Writing and a girl in Aeronautics. Both feel the program gives them a chance to do something they "just had to do" by offering courses that can't be offered on a traditional campus. The girl wants to be a pilot, and she says the course work has given her terrific insights into what it takes to keep a plane aloft, and the impact of tweaking little things in plane design. She says the course strengthened her commitment to the career. And both students spoke enthusiastically about their ability to network with kids from all over the country. They're both impressed by how different things are elsewhere and love not being confined to our own quite homogeneous community in exchanging views with their classmates. They really like the program."
-- Marie Kahn, VHS site coordinator, Las Lomas High School, Walnut Creek CA

"My name is David and I am a senior at Shrewsbury High, and I am also a VHS student. This past semester, I took "Music Appreciation and Composition," which was most likely the best course I have taken in High School. For the second semester, I am taking a "Fundamentals of Music" class in my High School, which is a step above the VHS class I took last semester. I was wondering if it was possible to leave the VHS class which I took last semester idle, that is, do not delete it from the database because I could definitely use the site as an effective resource for my other class…"
VHS student, *Music Appreciation and Composition*

"We are about to register for next year, so I've been looking at the course offerings, so I can recommend things to kids. The new courses are just mind-blowing. To Kill a Mockingbird is my favorite book of all time, and how I wish I could take that course [*TO KILL A MOCKINGBIRD: Maycomb - Microcosm to the World*]!"
-- Suzanne Tribble, past VHS site coordinator, Myers Park High School, Charlotte NC

"I had a faculty member of my local school ask if VHS would allow a teacher from a participating school to actually take a VHS course as a student? There are a few topics posted that have sparked interest in a few teachers here."
-- Don George, VHS site coordinator, Canfield High School, Canfield OH

"My former student Eric Lint had taken AP senior English with me when he was a junior. His plan was to take courses at the local college during his senior year through post-secondary option. BUT, he was shut out of his fall course; there was nothing for him to take--except VHS. He was able to get his semester of English credit through *Multicultural Literature* which qualified him for an honors diploma. The more options we offer students, the more likely we are to meet the real needs of individual learners."
-- Deborah Baker, VHS teacher, *Narrating Family Histories*, Tiffin Columbian High School, Tiffin OH

VHS is disseminating its successful model and acting as a catalyst for change

"Participation in the Virtual High School project has been a real catalyst of change at John F. Kennedy High School. Not only has it provided our students with courses more specialized and advanced than those offered at far more affluent secondary schools in our vicinity, it has also brought us recognition which is launching additional technology research projects into our classrooms. One other consequence - in February, a leadership group at the school - including all VHS participants - was authorized to proceed with a restructuring effort that will create the first Multimedia/Technology Magnet School in the Silicon Valley."
-- Jerry Lapiroff, VHS site coordinator, John F. Kennedy High School, Fremont CA

"We are so committed to online learning that we are going to include it as one of our goals in our Charter School proposal to the state. The staff and administration at Sprayberry High School (SHS) believe that the integration of technology and curriculum offers unlimited possibilities for students....SHS envisions online courses and distance learning as a vehicle to meet the needs and demands of education in the new millennium. The State of Georgia (DoE) is willing to take on the role as Administrator of the Virtual High School program for the southeast. Cobb County Public Schools have a unique opportunity to become the cornerstone of this program and others like it. With the Internet capabilities available, computer access to all, and technology training within Sprayberry, we propose that SHS become an online course development center and training site for teachers within the county and across the state."
-- Becky Nunnally, VHS site coordinator, Sprayberry High School,Marietta GA

"We are using VHS as a testbed for virtual learning in Ohio. SchoolNet sponsors schools that participate in the program, as a way to develop what we believe will be new teaching literacies in the future. We have grown from two high schools

participating in the first year to over thirty schools participating in the second year, and we anticipate adding another fifty schools in next year's TLC. The structures and resources that have been developed through this challenge grant have been of great benefit to us. We have used VHS as a model to create Ohio-specific professional development virtual courses for teachers at the novice and practitioner level of technology use. We are developing a school-within-a-school within the existing VHS structure - the medical schools at Case-Western Reserve, Ohio State University, and the University of Cincinnati are partnering with us to develop a high school curriculum focused on health careers and medicine. Courses that will comprise the curriculum of this school are being developed as part of the existing VHS program with the long-term goal of assembling them into a virtual health/medicine high school. We are building capacity - both human and hardware - to duplicate VHS in Ohio after the challenge grant ends. This year we will replicate some VHS courses at SchoolNet to gain technical experience. "
-- Tim Best, Programs Director, Ohio SchoolNet, Columbus OH

VHS and the Challenge Grants are making a difference

"I have a student who is currently in grade trouble in my American history class. She comes from a broken home and there are some problems between her and her step-father…Jenny is to be enrolled in my [VHS] Vietnam class second semester next year. When I started to make plans for the research projects for that class, I decided to allow students to interview a Vietnam vet. Her step-father is a Vietnam vet. Realizing she needed some extra credit if she were to pass my class this year, I gave Jenny the option to take her step-father's photograph albums from his Vietnam experience and create a PowerPoint presentation using those pictures. I asked her to have her step-father explain each picture she was to include in her project. The step-father is very interested in Jenny taking the Vietnam class. I feel certain that this project is going to open a line of communication between this troubled student and her step-father-Vietnam vet. Hopefully, this project will help to bridge the rift between these two and allow them to better understand each other. In addition, this student will get the credit she needs to pass my American history class this year and have a head start on next year's VHS project. Hopefully, her extra credit project will be good enough for me to include in my Vietnam course to share with my cyber students next year…Hopefully, everybody gains something. None of this would have happened without my being involved in VHS."
-- Ken Sowards, VHS teacher, *The Vietnam War*, Fort Loramie High School, Fort Loramie OH

"When I think about my experience with VHS, I always think about the personal aspect that it has brought to my teaching. I value the close community of educators who are able to provide critical insight and observations about my teaching; I value the opportunity for the collaboration between the often insular world of the school and the larger world of technology. But, mostly, I value the personal relationships with students - the kinds of relationships which just are not possible in the size and structure of most secondary institutions. My journey with VHS began in its very first year - in March of 1997. One of my freshmen, Scott, had just committed suicide. I could only ask myself what we, the school, might have been able to do differently. For me, the hard work as a pioneer of VHS has been dedicated to Scott - so that we can try to make a difference for other alienated students.

So many of these new relationships have been intellectually and personally joyful. We are able to engage in open-ended discussions about philosophy, the focus of my course. There is time for thoughtful and individual responses, as we try to understand major beliefs of various philosophers. And, we also have a unique opportunity to meet each other as persons. Two of my first students are now off at college - one in Ohio, another in North Carolina - but we continue to communicate about all kinds of topics. We have become a wider community of learners: wishing one student well on her trip to the Hague as a youth delegate to a peace conference; providing another student in Littleton, Colorado, a forum to describe her thoughts; offering emotional support to another on the death of a friend, at a time when she felt those in her physical surroundings didn't understand her grief. While I do not believe that a "virtual" environment can ever totally replace the live classroom, I do think it provides a rich and rewarding environment for many. "
-- Bevan Vinton, VHS teacher, *Eastern and Western Thought – A Comparison*, Campolindo High School, Moraga, CA

"As a result of my module on Clinton's One America Race Initiative for the 21st Century, Lina Pheng of Lowell High extended her assignment to the teaching staff and interviewed them as to their experiences with racial discrimination. This came to me by way of her site coordinator who was impressed with her initiative and interest in the topic. Lina is a fine example of the type of student enrolled in my United States Government Issues Net Course, she earned a 95% for the first half marking period. My course also allows for non planned online discussion as news breaking events occur. Discussions on the Kosovo Conflict and the Columbine Tragedy allowed for students from California to Boston to discuss and express their opinions across time zones. Students are divided on whether we should be involved or not and all agreed that we should not send in ground troops. On the tragedy in Littleton, students made the following remarks: the state and federal government needs to address this issue, with monies made available to fund security measures and programs to prevent future problems, a re-vamping of the Brady Bill, education programs in the schools to reduce "violence", the dire need for parents to talk to their children. Another module entitled Controversial Issues, allowed students to post opinions on the following topics: Clinton's Female Woes; Sadam's Castles in the Sand; Tobacco, Use and Sales to Youth; Internet, To Filter or Not; and School Violence. Students post a comment, it is read by a peer who then reacts, starting a thread or string of asynchronous discussion.

As an instructor I have become proficient in the use of Learning Space and Lotus Notes, the later is the software we use for our online course. I have acquired new technology skills and have incorporated Standards and Benchmarks into my course making it more in line with states' education standards. I have made many virtual friendships, both with my students and fellow net course teachers. I have gotten many virtual cards and thanks from my students as a result of my course content and method of delivery. "
-- Joey Sanchez, VHS teacher, *United States Government Issues*, Escalante High School, Amarilla NM

"I don't have any great "this changed a student's life" stories. What I do have is the wonderful experience of being involved in a truly dynamic, truly exciting educational journey. Last year we only had a few students involved in the Virtual High School program. Each was able to take a course not offered at our high school and each developed relationships with students throughout the country and some remarkable technology skills. This year we have fourteen students participating and their knowledge and enthusiasm for the program grows each day. Next year we will have at least twenty-six students involved and a waiting list of students hoping someone will move or change their mind about the program. The growth of the VHS program in our school indicates the infectious nature of a program whose time has come.

I have a Vietnamese student who took "Logic, Deductive Reasoning and Proof" last semester, as she is very math orientated. When she found that she also had to deal with the twisted logic stream of the book, "Through the Looking Glass" she became a little overwhelmed. She dug in and mastered the complex verbal logic of Lewis Carroll's work and is far more proud of the "A" she earned in that class than her "A"s in her advanced math courses. I have a student who is taking "Introduction to Computer Programming" this year and "Visual Basic" next year because he has already completed all the programming courses available in our school. He can't wait for next school year to begin. I have students who were able to take "Native America", "Poetics and Poetry for Publication", "The American Music Heritage", "A Model United Nations Simulation" "Photography as Visual History" and "Microbiology". None of these courses are available in our high school and each student has a passion for their particular topic."

-- Mark McGrath, VHS site coordinator, Collingswood High School, Collingswood NJ

"I believe [this] is a good way to take academic courses while learning about the internet. The course I am taking, AP English, is the most valuable course I have ever taken. The teacher was committed to the students and the course and that's why this particular class was very beneficial to my academic career."
-- VHS student, *AP English: A Web-Based College Level Course in Literature & Composition*

"Facts:
1. Most of our VHS senior students report that they feel more comfortable to face the technology demands of college, after taking VHS courses.
2. ESL (English as a Second Language) students are successfully taking advantage of VHS courses they would refrain from taking in a regular classroom becausc of their imprecise, accented oral English.
3. In at least one case, parents of a very bright student moved their child from a catholic school to the Hudson High School to take advantage of the VHS courses. "
-- Gabriel Cruz, VHS site coordinator, Hudson High School, Hudson MA

"Virtual High School has propelled Miramonte High School and the Acalanes District into the digital age and afforded students and staff with educational opportunities that have increased learning, and fostered collaboration. The Challenge Grant Program has created a national educational community for us allowing our teachers and students to experience learning in diverse communities. Visitors to Miramonte High School's lab where Virtual classes are being taken by students are amazed at the variety of courses that students are taking, the collaboration between students and the energy in the room. Students are sharing poetry that they have written, music they have composed, programs they have created, and stories they have read. In one classroom students are taking eleven or twelve different classes and sharing what they are learning with other students. Virtual High School has extended opportunities for Miramonte students by providing them with elective choices that they would never have if the school was not involved in the Challenge grant program. The number of electives at the school has grown from a few traditional choices like Foods or Psychology to well over 100 unique and challenging courses. Students are now able to pursue interests which will open many doors in the the career and college world. Virtual High School also is a powerful opportunity for special needs students. One student at Miramonte has Lyme's disease. He is unable to attend school for more than two periods. His Virtual course on Oceans has allowed him to participate in a school environment from home, talking to students and learning when he has the energy.

Virtual High School has been the strongest teacher training component in our district ever. Teachers are finally collaborating on courses and learning technology. The nature of the online courses gives teachers flexibility to pursue this learning from their tight schedules. It has broken down the isolation of the classroom walls by giving teachers the means to "see" ideas from other educators and implement those ideas in their classrooms."

-- Cheryl Davis, VHS site coordinator, Miramonte HS, Orinda CA

Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI. Clause 2(g)

Your Name: Bruce F Droste		
1. Are you testifying on behalf of a Federal, State, or Local Governmental entity?	Yes	No ✓
2. Are you testifying on behalf of an entity other than a Government entity?	Yes	No ✓
3. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1996: Technology Innovation Challenge Grant – Virtual High School		
4. Other than yourself, please list what entity or entities you are representing:		
5. If your answer to question number 2 is yes, please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question number 4:		
6. If your answer to question number 2 is yes, do any of the entities disclosed in question number 4 have parent organizations, subsidiaries, or partnerships to the entities for whom you are not representing?	Yes	No
7. If the answer to question number 2 is yes, please list any federal grants or contracts (including subgrants or subcontracts) which were received by the entities listed under question 4 since October 1. 1995, including the source and amount of each grant or contract:		

Signature: Date: May 10 1999

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